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Support for AppleWorks and ///EZ Pieces Users

Did I Patch AppleWorks?

Dear NAUG:

The documentation that comes with the AppleWorks 3.0 Patch Disk indicates that you can tell if your copy of AppleWorks is patched by looking for a series of dots at the bottom of the AppleWorks Help Menu. I patched my copy of AppleWorks and now see a series of horizontal lines at the bottom of the Main Menu Help Screen (see *Figure 1*). Did I install these patches correctly?

Also, can I install the version 1.5 patches on a copy of AppleWorks I patched with an earlier version of the Patch Disk?

Scott Lorigan
Elk Grove, California

[Ed: Your problem is with the documentation, not with the patches. The parallel horizontal lines indicate that you installed version 1.5 of the patches correctly.]

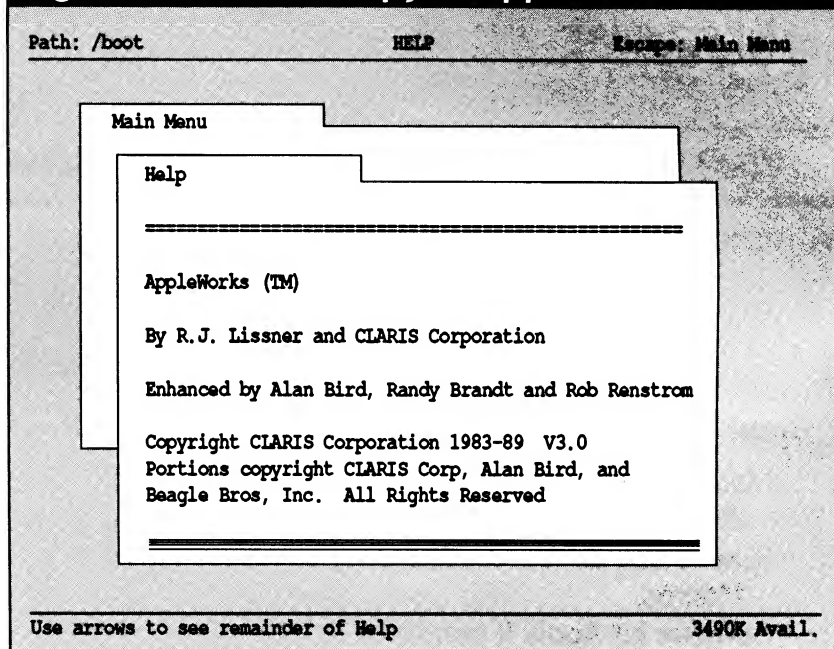
Each version of the Patch Disk displays different characters at the bottom of the Main Menu Help Screen. Mark Munz used the following characters to designate each version of the program:

<u>Version</u>	<u>Character</u>
1.2	Mousetext diamond
1.4	Mousetext solid-apple
1.5	Mousetext lines (as in Figure 1) or a row of dots
1.5.1	Row of dots

If you installed version 1.5 of the Patch Disk, don't bother installing version 1.5.1. The only change in version 1.5.1 is the use of dots as the patch indicator; there are no functional differences between versions 1.5 and 1.5.1.

Mark Munz is about to release version 1.6 of the Patch Disk; information about that disk appears in the AppleWorks News article elsewhere in this issue of the AppleWorks Forum. Version 1.6 will end the confusion about the different versions of

Figure 1: Patched Copy of AppleWorks



this program; when you patch with version 1.6 the message "Patcher 1.6" will appear at the bottom of the Help Screen.

If you limited your patches to the AppleWorks 3.0 Patch Disk, you can install the version 1.5 or 1.6 patches on a previously patched copy of AppleWorks. However, if you installed SuperPatch or AW 3.0 Companion patches, we suggest that you start with a new copy of AppleWorks, install Time-Out and the AppleWorks 3.0 patches, and then re-install your favorite patches from SuperPatch and the AW 3.0 Companion.]

AppleWorks Forum

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Mouse without UltraMacros

Dear NAUG:

AppleWorks users who want to use their IIGs mouse with AppleWorks don't need to buy Time-Out UltraMacros. SoftDisk GS Volume #8 includes a program called OmniMouse that works well with AppleWorks and other programs. However, OmniMouse does not work correctly with the IIGs Finder.

Karl Kerchief
Colorado Springs, Colorado

[Ed: OmniMouse is a Classic Desk Accessory you can turn on and off while you are in AppleWorks. SoftDisk GS Volume #8 costs \$12.95 plus \$3 s/h from SoftDisk Publishing Company, Box 30008, Shreveport, Louisiana 71130-0008; (800) 831-2694.]

Wants to Buy Parts

Dear Cathleen:

Do you know of any place that will sell replacement ROM chips, CPU's, and other chip-level products so I can repair my own Apple II?

Joe Andrusiak
Caledonia, Michigan

[Ed: Many chips in Apple computers are proprietary and are tightly controlled by Apple; authorized dealers are specifically prohibited from selling chip-level components. You can sometimes get chip-level components from Pre-Owned Electronics, 30 Clematis Avenue, Waltham, Massachusetts 02154; (800) 274-5343, although Pre-Owned rarely sells individual chips and prefers to sell complete boards, including Apple II motherboards.

General-purpose components such as connectors, cables, and RAM chips are available from elec-

The **National AppleWorks Users Group (NAUG)** is an association that supports AppleWorks users. NAUG provides technical support and information about AppleWorks and enhancements to that program. Our primary means of communicating with members is through the monthly newsletter entitled the **AppleWorks Forum**.

tronic specialty houses such as Circuit Specialist, Box 3047, Scottsdale, Arizona 85271, (800) 528-1417; Jameco Electronics, 1355 Shoreway Road, Belmont, California 94002, (415) 592-8097; and Digi-Key, Box 677, Thief River Falls, Minnesota 56701, (800) 344-4539. Jameco also sells board-level parts and power supplies.

Finally, The ARC (The Apple Resource Center) sells new, rebuilt, and repaired computers, components, boards, and peripherals. Contact The ARC at 3482 The Alameda, Santa Clara, California 95050, (408) 247-6457, for more information.

These companies also have valuable catalogs available for the asking.]

Problems Transferring AppleWorks Word Processor Files

Dear NAUG:

The article "Transferring AppleWorks and AWGS files to the Macintosh" in the October 1990 issue of the **AppleWorks Forum** described how to transfer AppleWorks 3.0 word processor files to the Macintosh using MacWrite II. Is there any way to transfer these files without using MacWrite II?

Nicole Olson
Berlin, Germany

[Ed: Microsoft recently released version 2.00d of Microsoft Works. The Works-to-Works Transporter included with the new version of Works will translate AppleWorks 3.0 files to MicroSoft Works without using MacWrite II. Registered owners of Microsoft Works 2.0 can get a free update to version 2.00d by calling Microsoft at (206) 426-9400. You will need the document number that appears at the bottom of page ii of the Microsoft Works User's Guide.

Copy the Works-to-Works Transporter into the Apple File Exchange folder and follow the instructions in the article "How to Transfer AppleWorks Data to Macintosh Computers" in the November 1988 issue of the AppleWorks Forum.]

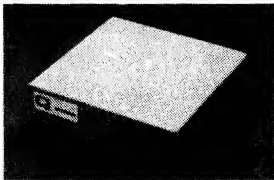
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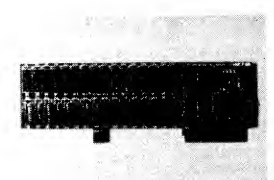
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How to Get Multi-User AppleWorks

by Warren Williams and Cathleen Merritt

School principals, guidance counselors, librarians, and many business people need occasional access to files entered and maintained by an employee or colleague. This article describes an easy way two AppleWorks users can share their computer and data.

A true multi-user environment gives two or more users the ability to simultaneously manipulate data in a file. Travel agents work in a multi-user environment; hundreds of agents can update and manipulate data that is stored in a large data base. Bank tellers work in a multi-user environment; dozens of tellers can simultaneously examine their customers' bank records. This requires sophisticated software that controls who has access to the data and prevents two or more users from trying to change the same record simultaneously.

Unfortunately, the available Apple II networks do not offer true multi-user capabilities because of the failure of the industry to develop Apple-compatible programs that let users interactively share and manipulate data.

This article describes a work-around that lets you configure any Apple IIGS computer so two users can share and manipulate their AppleWorks or AppleWorks GS (AWGS) data files. The procedure involves connecting two keyboards and monitors to a single IIGS system so users at two proximate locations have complete control over a single computer running AppleWorks.

Although this approach does not require a network, file server, or new software, your reconfigured system will only offer a "shared environment", not a true "multi-user environment". That is, although two users will be able to share one computer, they cannot work simultaneously; one must wait while

the second user accesses the system. In addition, the system uses a standard single-user version of AppleWorks; there are no provisions to prohibit the two users from simultaneously trying to access and modify the same data. Nor are there provisions to password protect specific files or data. Finally, only one of the two users will have access to a mouse; that limits the utility of this configuration for AWGS users.

Despite its significant limitations, we envision many settings that can benefit from this shared environment. For example, imagine a school office

where the secretary uses AppleWorks to maintain student data files. The shared-user approach lets the principal get immediate access to the data on the system. Or picture a library which can use this approach to give access to the circulation file from both the circulation desk and the librarian's office.

These simple procedures let you simulate a multi-user environment.

Overview

The process involves attaching a second keyboard and monitor to a IIGS computer. If the cables are long enough, you can position the second keyboard and monitor up to 25 feet from the computer, and give both users complete access to the system.

You won't need any tools or new software for this "upgrade". You will use your working copy of AppleWorks or AWGS and readily available plug-in cables and accessories.

Caveats

Running a shared system will require you to buy \$47.50 worth of custom cables that are not returnable, even if they do not work with your equipment. We successfully tested these procedures on two of NAUG's IIGS computers, but there is no guarantee that your IIGS system will support these remote operations; you are risking the cost of the cables.

We limited our tests to 25 foot cables because (a) Apple recommends that you run these cables no more than seven meters (approximately 21 feet), and (b) we believe that 25 feet is a sufficient distance for most users. However, these procedures will work with longer cables *on some systems*. Unfortunately, the longer the cables, the more likely you are to have difficulties with your setup, so we suggest that you limit the cables to 25 feet for maximum reliability.

What You Need

Here's what you need:

- Apple IIGS computer with monitor and keyboard.
- Apple-compatible monochrome monitor.
- ADB-compatible keyboard.
- 25 foot shielded cable with RCA connectors.
- 25 foot keyboard extension cable.

The computer: If possible, use a IIGS equipped with a hard disk and a color monitor. The hard disk gives the remote user access to all data files without swapping disks. The color monitor plugs into the IIGS RGB port and leaves the composite monitor port available for a second monitor. (If your IIGS uses a composite monitor, you can connect a "Y" splitter (Radio Shack part no. 42-2436; \$2.69) and a second monitor to the system. However, this is not recommended because the "Y" device splits the signal available to both monitors. That limits the length of the video cable you can attach to the system and reduces the maximum distance between the two user stations.)

The keyboard: The IIGS uses a standard ADB (Apple Desktop Bus) keyboard, so you can use the keyboard from any Apple IIGS, Macintosh SE, SE/30, LC, or Macintosh II-series computer. Consider "borrowing" the keyboard from an out-of-ser-

vice Macintosh or Apple IIGS, or buy a third-party keyboard. Third-party keyboards include the MacTel Extended Keyboard, \$99 from MacTel Technology, 3007 North Lamar, Austin, Texas 78705; (512) 451-2600 or the Keytronic Macpro Keyboard, \$115 from Club Mac, 7 Musick, Irvine, California 92718; (800) 258-2622. *[Ed: A future issue of the **AppleWorks Forum** will describe how to use TimeOut UltraMacros to program the keys on an extended keyboard.]*

The cables: You need high quality cables to connect the remote monitor and keyboard to the computer; NAUG arranged for a cable manufacturer to custom fabricate these cables for members. The 25-foot keyboard extension cable costs \$25; the video cable costs \$22.50. All prices include shipping within the United States.

The cable manufacturer usually sells to dealers and can only accept pre-paid mail orders. Send your order to NAUG Custom Cables, Micro Computer Cables Company, 16018 Huron River Drive, Romulus, Michigan 48174. Include a check or money order for \$47.50 for both cables; the company cannot accept telephone or credit card orders.

Foreign members can order the cables from NAUG's office. Foreign orders by credit card only; we will charge your card for the cables plus air mail shipping and handling. We can only guarantee that the cables will get to the Post Office in the U.S.; we cannot be responsible for final delivery.

How to Proceed

Turn off your computer, remove the mouse from the ADB port on the side of the IIGS keyboard, and insert the keyboard extension cable into that port. Insert the other end of the cable into the new keyboard. Then plug the video cable into the composite port on the back of the IIGS and into the monochrome monitor.

Put the new keyboard and monitor next to the computer to make it easy to test your system. Turn on both monitors and boot up AppleWorks. If the image flickers on the remote screen, remove and clean the cable connectors (you do not have to turn off the computer for this operation). If the image still flickers, try using the controls on the monitor

General Interest...

to stabilize the image. If that fails, you will need to use a shorter video cable.

Then try to run AppleWorks from both keyboards; you should not notice any difference when operating your system from either keyboard.

Finally, move the remote keyboard and monitor to their new location and you are ready to work from either station. Just make certain that two users don't try to access the computer at the same time. No damage will occur to the system if two users work simultaneously, but you will see interesting results on both screens.

Electronic Messages

The availability of a shared environment suggests the possibility for interesting applications that are not available on a single user system. For example, both users can create word processor documents that include electronic messages to each other; a "poor man's electronic mail system". We expect that creative AppleWorks aficionados will develop a variety of other applications that make effective use of this new environment.

[Dr. Warren Williams is a Professor of Educational Technology at Eastern Michigan University. He is the President of NAUG and is a frequent contributor to the AppleWorks Forum. Cathleen Merritt is the Director of NAUG and is the Editor of the AppleWorks Forum.]

The authors thank Bruce Green for suggesting the idea behind this article, Michelle Thomas of the Learning Center in Ann Arbor, Michigan for doing some of the research necessary to prepare this article, and Anita Berendt of Micro Computer Cables for arranging to manufacture these cables for NAUG.]

Corrections

February 1991, page 24, Figure 1: The macros labelled "Handles accent aigus" should include two apostrophes followed by a quotation mark instead of three quotation marks. For example, the first line of that set of macros should read:

\$1 = "a'" : \$2 = "G" : sa-` :

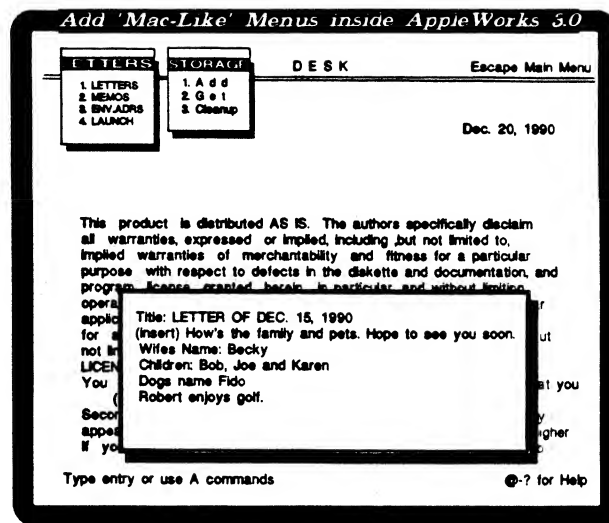
March 1991, page 9, Figure 4: The order of operations in this figure should read:

... read : del : insert : right : print \$0 ...

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A Business Letter Template

by Stan Hecker

This is the first of a series of articles that describe the features of different AppleWorks templates. This month, Stan Hecker presents his favorite; a simple business letter template.

After I wrote my first few letters with AppleWorks, I realized something was wrong. There I was, using a powerful computer, yet I had to retype my letterhead at the beginning of every letter. There had to be a better way.

The answer was to create a "template"; a document that contained my letterhead, but little else. Once I created and saved the letterhead, I could avoid any retyping by loading the template onto the desktop and writing the letter.

If you write many letters, you may already use a template to speed the process. If you are new to AppleWorks or to templates, this article may save you a few hours of repetitive typing each year.

My template uses some features of AppleWorks 3.0 to create a simple letterhead at the top of the page. You will need to replace my name and address. You can also customize the template in other ways to use the features of your own printer or to work with earlier versions of AppleWorks.

Figure 1 depicts the output created by this template on an ImageWriter.

The Template

Figure 2 shows the underlying commands in the template.

The first two lines of the template set narrow side margins for the letterhead. You probably noticed that the preprinted letterhead on most formal letters

Figure 1: A Sample Letterhead

Dawn & Stan Hecker
9999 Streetname, East Lansing, MI 48823 (313) 555-1212

March 21, 1991

National AppleWorks Users Group
Box 87453
Canton, Michigan 48187

Dear Cathleen:

Sincerely,

Stan Hecker

extends into the side margins; sometimes right to the edge of the paper.

I used some special effects for the writer's name and address. The name is in large boldface (the carets left and right of ^Dawn...Hecker^ indicate boldface). Instead of using AppleWorks' underline commands, I typed the line between the letterhead and the rest of the letter as a series of underscore characters. That sets the letterhead off from the body of the letter.

The Page Footer numbers each page of a long letter. If you write short letters, you can delete the footer or you can create separate templates for short and long letters. Note that I use a 3-line header to ensure that there is white space between the bottom line of the text and the page number. The "-^-" characters in the footer indicate my use of the Print Page Number command offset by hyphens to enhance the output.

My Favorite Template...

Figure 2: The Template

```
-----Left Margin: 0.3 inches
-----Right Margin: 0.2 inches
-----Chars per Inch: 5 chars

^Dawn & Stan Hecker^
-----Chars per Inch: 10 chars
9999 Streetname, East Lansing, MI 48823          (313) 555-1212

-----Page Footer
-----Centered
Prints the page number at
the bottom of every page.

-----Unjustified
-----Page Footer End

-----Left Margin: 0.5 inches
-----Right Margin: 0.5 inches

^ Prints today's date.

^
^ Printer stops and waits
^ for the recipient's name
^ and address.

Dear ^:
Type the contents of
your letter here before
printing.

Sincerely,

Stan Hecker
```

The caret mark two lines below the “Right Margin” setting indicates the presence of AppleWorks 3.0’s “Print Date” function. This function inserts the current date when you print the document.

The next three caret marks signify my use of the Enter Keyboard Command which tells AppleWorks to stop printing and ask you for input. AppleWorks will print the data you entered and proceed with the printing.

AppleWorks does not store the data you enter in response to the Enter Keyboard Command. If you want to save your letter with the recipient’s name and address, change to the over-strike cursor and overwrite the caret marks with the recipient’s name and address before you issue an Apple-P to print the file.

The caret mark after “Dear” signifies another Enter Keyboard Command.

Enter the body of your letter between “Dear ...” and “Sincerely,”. You can create new text of any length and/or insert boilerplate text from other templates. Remember to change the name of your document and issue an Apple-S command to save your file.

Summary

Templates improve your efficiency by eliminating repetitive typing. You can make your letterhead template as simple or as elaborate as you like, depending on your needs.

[Stan Hecker is on the administrative staff at Michigan State University and a partner in H&H Consultants, a Michigan concern specializing in educational finance and school populations. He has agreed to write about

your favorite templates, asking only that contributors be generous with their templates and be patient as he sorts through and works to understand them.]

What is a Template?

A “template” is a word processor, data base, or spreadsheet file that includes the basic structure of a document, data base, or worksheet but contains incomplete data. For example, a template for a gradebook would include all the necessary formulas and headings, but not the names and grades earned by students. To create a new gradebook, you load the template onto the AppleWorks desktop, change the name of the file (to preserve the empty template on the disk), and start to fill in the names and scores of the new class.

This article describes a template for a business letter. The template contains all the necessary formatting commands and the text you would include in every letter; e.g., your return address. You load the template onto the AppleWorks desktop, change the name of the file, and create the letter.

The Left Margin and Right Margin commands after the page footer widen the margins to ensure that the body of the text fits within the left and right edges of the letterhead.

If you liked the first edition, wait till you see the new one!

In the past four years, teachers and schools have ordered over 192,000 units of *Hands-On AppleWorks* by Luehrmann and Peckham. That's an average of about seven for every junior and senior high school in the U.S.

Now, Computer Literacy Press is happy to announce publication of *Hands-On AppleWorks 3*, a major revision based on AppleWorks® 3.0 and all its exciting new features.

Like the original, the new edition features self-paced, step-by-step instruction for student work at the computer — plus a full package of support material that makes life easy for the teacher.

What They Said about the Original

"Success with AppleWorks is almost guaranteed with these excellent step-by-step guides for helping students to become experts with the software." *Electronic Learning*.

"This series proves to be a masterful tool for anyone learning AppleWorks." *Classroom Computer Learning*.

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Outstanding. After inservicing teachers and conducting adult education classes, along comes Luehrmann & Peckham to make all our lives simpler." *MACUL Newsletter*.

"Anyone teaching AppleWorks to beginners (whether young people or adults) would be crazy not to use it." *MicroTimes*.

What's New In the Revision

AppleWorks 3.0 Features A unit on using the spelling checker • An entire lab on formatting tables with tab rulers and real tabs • Using the new page header and page footer printer options • Horizontal scrolling in the data base • Sorting a data base on more than one field • Finding data base records with the search limited to one field • Freezing and thawing titles in a data base • Using the @IF and @CHOOSE spreadsheet functions to display labels • Extensive use of the clipboard for moving, copying, and deleting items in all three applications.

Other features new to this edition An entire chapter on integration of AppleWorks tools (mail-merge, using the data base and spreadsheet together, moving data to the word processor, exporting and importing data via text files on a disk) • Working with 3.5-inch or 5.25-inch disks • Using subdirectories • Using standard computer terms (open, close, cut, paste) • Cutting text to the clipboard as a safe way to

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Accelerate Your TransWarp GS Card — Part 3

by John Link

This is the last of three articles that describe how to improve the performance of a TransWarp GS card by 61 percent. The author assumes that you read the previous articles in this series.

The first two articles in this series described how to install a 32K cache upgrade in an Applied Engineering TransWarp GS (TWGS) accelerator card and how to increase the card's processing speed to 9 megahertz. This month, I will describe the ultimate upgrade; one that lets you run your Apple IIGS system at 10 megahertz. *Figure 1* on page 20 of the March issue of the *AppleWorks Forum* includes a graph that depicts the system performance you can achieve with the 10 MHz and 32K cache upgrades. As you can see from that figure, you get the greatest benefit by installing both of these enhancements.

Although this is the most complex of the TWGS upgrades, I installed it successfully on three randomly selected boards. None the less, you must realize that you are pushing the engineering-grade 65C816 to the very edge of its capabilities. These procedures are for users who are willing to experiment without a guarantee of success. Work carefully when you make these modifications; you will void the warranty if you damage your board or install a chip incorrectly.

TWGS Limitations

The basic circuitry of the TWGS will work at speeds in excess of 10 MHz; I know of boards that run reliably at 12 and 13 MHz. However, most of the socketed parts on the TWGS are rated for 8 MHz operation, and Applied Engineering cannot warranty that the socketed components will work at speeds faster than their 8 MHz rating. Fortunately, most manufacturers under-rate the parts they supply to Applied, so many TWGS cards will work

at 10 MHz with standard parts. If you want to use parts rated to work at speeds faster than 8 MHz, Applied will supply a set of the four most critical GALs (Generic Array Logic chips) as a special order item; contact the company for prices. *[Applied Engineering, Box 5100, Carrollton, Texas 75011; (214) 241-6060.]*

All versions of the TWGS ROM from version 1.5 forward will work at 10 MHz. See the previous article for procedures that describe how to qualify and upgrade your ROM.

Overcoming the 10MHz Barriers

Install a high speed processor and oscillator: Most 65C816 processors used on a TWGS will operate reliably up to 8 MHz; you need a high speed 65C816 CPU and 40 MHz oscillator to achieve 10 MHz operation. Last month's article describes these special components.

Use a fan: A fan dissipates some of the internal heat which builds up as you run the CPU faster. That adds to the reliability of your system. You will need a fan if you want to accelerate your TWGS to 10 MHz.

Increase system voltage: Initially, both the 65C816 engineering chips I tested ran reliably at 9 MHz with several standard IIGS power supplies. One of the processors began to develop problems after six weeks of reliable operation. (See the sidebar "Burn-In and 9 MHz" for more details.) Both chips were reliable at 10 MHz when I used an Applied Engineering heavy duty power supply that

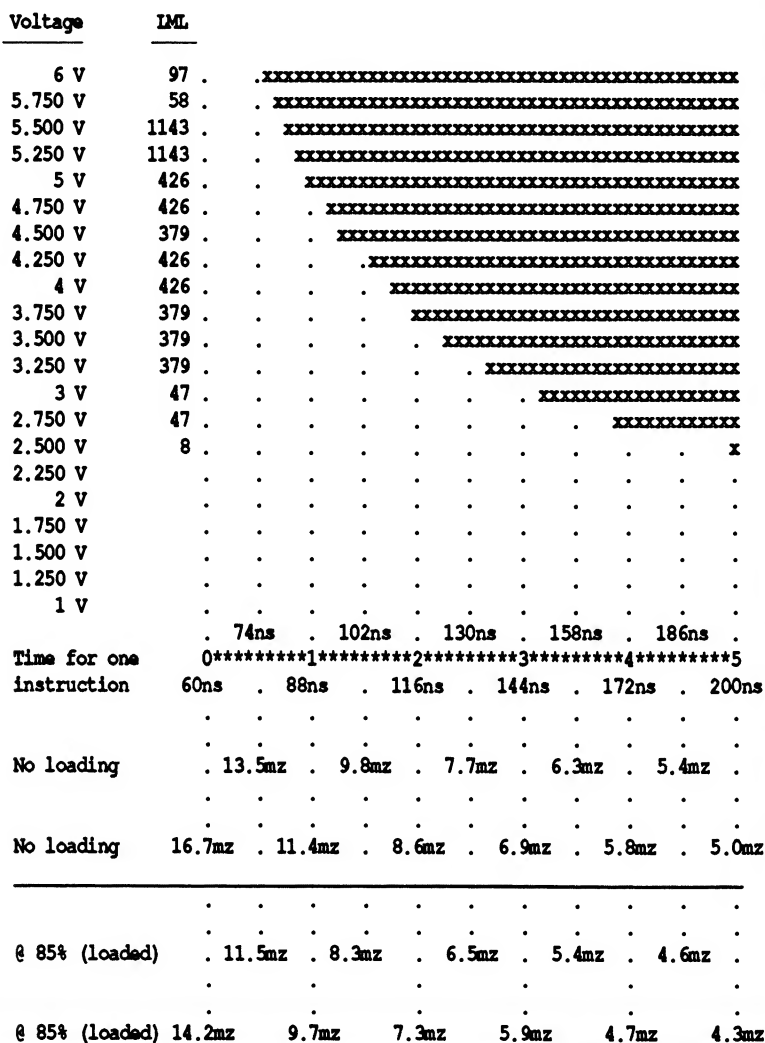
Ten Megahertz Barriers

Western Design includes a "shmoo plot" (see *Figure 1*) that graphs the results of a test which they run on every engineering-grade 65C816. A table at the top of each plot (which I deleted from *Figure 1*) includes the data used by the operator for the test; you do not need to understand that data to interpret the plot. Likewise, the "LML" column on the plot refers to the "Lower Memory Location" where the test registered its first failure. The tester uses the LML and it has no bearing on using the chip with a TWGS.

The X's on the each line represent the number of nanoseconds it takes to execute one instructional cycle; the fewer the nanoseconds, the faster the processing time. To translate this figure into the more commonly understood "megahertz", divide 1000 by the time required to execute one instructional cycle. I performed this calculation for each major division in the plot and entered those values underneath the graph in an area I labelled "No loading". That tells you the number of instructional cycles the chip can execute each second. Thus, a chip operating at 10 MHz is twice as fast as a chip operating at 5 MHz.

A chip's maximum speed is determined in great part by the voltage supplied for its operation and by the speed and current used by other components connected to its circuits. The vertical

Figure 1: Typical Shmoo Plot



scale in the shmoo plot represents voltage from 1.0 to 6.0 volts. The first "X" on each line indicates the fastest speed at which the chip will process instructions reliably at that particular voltage if there is no interference from other factors.

The TWGS gets the voltage for its CPU from pin 25 of the edge card connector, which is nominally supplied with 5.0 volts. (The standard 65C816 on the

IIGS motherboard receives the same current found at pin 25 of the edge card connector.) As you can see from *Figure 1*, the higher the voltage available to the processor, the faster the 65C816 can operate reliably. The sample plot suggests that this processor can operate reliably at approximately 13 MHz if it is supplied with a 6.0 volt current.

Western Design tests the engineering processors under optimal

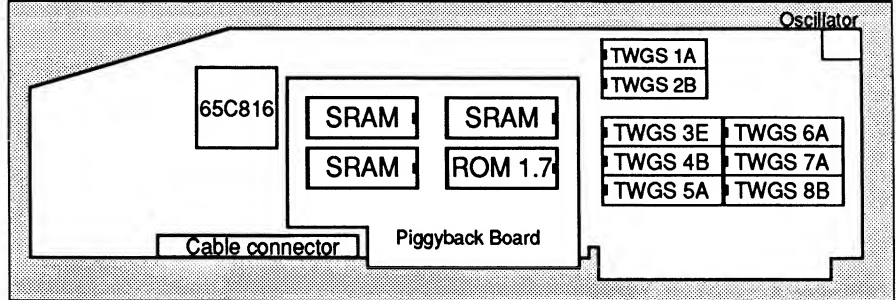
conditions by using the 65C816 in a circuit that places minimal current loads on the chip's pins. The TWGS connects the 65C816 to additional circuits that substantially increase this loading, and therefore increase the time it takes to process instructions reliably at any given voltage. Further, the test does not consider the degradation of the chip's performance that inevitably occurs after a month or so of use (see the sidebar "Burn-In and 9 MHz").

As a rule of thumb, you can expect a processor installed on a TWGS to perform reliably at 85% of its "No load" designated speed. Thus, I added the 85% loaded values to the shmoo plot in *Figure 1*.

Once you make the adjustment for the loading, you can see that a typical engineering chip will not run reliably at 10 MHz when installed on a TWGS unless you increase the voltage beyond the standard 5 volts.

In addition, current 65C816 chips cannot execute certain instructions reliably when operating beyond 4 MHz; circuitry on the TWGS intercepts those instructions and allows extra time for their execution. However, when you reach 10 MHz, additional instructions do not execute reliably in 16-bit mode. The TWGS does not intercept these instructions unless you use a revision E or later TWGS 3 GAL.

Figure 2: TransWarp GS Diagram



I adjusted to yield 5.25 volts. After several months of intense use (averaging 12 hours per day) one became unreliable at 5.25 volts and required 5.5 volts to run at 10 MHz.

The standard IIGS power supply, which provides a nominal 5.0 volts to the CPU on the TWGS, is not easily adjusted; you must remove and replace soldered parts to change its output. Adjusting the output from the AE power supply is not as difficult, but involves exposure to potentially lethal current; thus, I will not describe how to perform this operation. However, Applied will sell NAUG members a power supply that provides 5.25 volts for only a nominal charge over the basic cost of the unit. You should install one of these power supplies in your system before proceeding with the 10 MHz modification.

Use new GALs: As indicated in the sidebar "10 Megahertz Barriers", some operations are unreliable when you drive a 65C816 processor faster than 4 MHz. GAL chips on the TWGS intercept these instructions and add additional cycles when they execute to provide reliable operation at faster speeds.

You need a revision E (or later) #3 GAL to operate the TWGS at 10 MHz; Applied programmed that chip to compensate for certain 16-bit instructions that do not execute properly at 10 MHz. (See *Figure 2* for the location of the TWGS 3E chip.)

The extra voltage from the special power supply increases the reliable operating speed of the standard TWGS GALs so that some will work at 10 MHz. However, success on any given board depends upon all eight GALs working at the higher speed. One of the boards I tested did not work at 10 MHz until I installed the high performance GALs.

You can order the TWGS 3E GAL directly from Applied as a single item, but I suggest that you get the set of four high performance GALs (#2, #3, #4, and #5) if you are going to the trouble and expense of ordering. Those high performance parts increase the likelihood of the success with your 10 MHz upgrade.

Replacing a GAL is similar to replacing a memory chip. Use *Figure 2* to locate the chips, remove the originals with a standard chip puller or small screwdriver (be careful not to damage any nearby traces), and press the replacements in the sockets with your fingers. Orient the chip in the proper direction by placing the notch as shown in the

diagram. Save the original GALs and reinstall them on your TWGS if you return the card for warranty or other repairs. Otherwise, you will lose the high speed GALs if Applied substitutes a new board for the one you return.

Use high speed SRAMs: Applied uses 45 nanosecond (ns) SRAMs on the TWGS. Because they tend to be under-rated, and because the higher voltage from the special AE power supply increases their maximum speed, many will work at 10 MHz. (I found all the standard 45ns SRAMs I tested were reliable at 10 MHz.) However, your chances of successful 10 MHz operation will increase substantially if you install the 32K cache upgrade which includes 35ns SRAMs. Some 10 MHz upgrades will require 25ns SRAMs. In that case, simply replace the socketed 35ns SRAMs on the back of the upgraded piggy back board with the faster SRAMs.

Bring It All Together

To get 10 MHz speed, you must approach your TWGS and IIGS system as a totality. Every time you raise the maximum speed of any component on your TWGS, you make it easier for the CPU to perform reliably at a higher speed. Thus, faster GALs and SRAMs allow greater latitude for the CPU to do its job. The increased voltage from the AE power supply increases the maximum reliable operating speed of all components; it is a universal tonic for chips that cannot keep up. Likewise, a fan gives every component a greater range of operating speed by evacuating the heat which causes them to become unreliable.

Performing the Upgrade

Start by installing a 5.25 volt AE power supply, a system fan, and a TWGS 3E GAL chip if you need

Theoretical and Practical Limits

Theoretically, you can modify a TWGS to run at 12 or 13 MHz with currently available 65C816 chips. However, that involves adding a voltage regulator to the board and altering the circuitry so the CPU on the TWGS gets its power from the 12 volt line stepped down to 5.75 volts.

Supplying 5.75 volts to the CPU causes it to generate internal heat that will significantly interfere with its reliability and will shorten its life. You can add delay cycles to the operations affected by the heat, but that would nullify most of the gains you achieve by increasing the processing speed. A better alternative is to connect a cooling unit

directly to the CPU, which also decreases the negative effects of loading the chip with additional current from other circuits on the TWGS. That costs about \$150, occupies two or three slots immediately adjacent to the TWGS, and further taxes the IIGS power supply.

A better solution for performance beyond 10 MHz is to use a 65C816 chip that is engineered for higher speeds. Western Design Center says it is working on such a chip, but was not able to furnish a prototype for this article. We can only hope that their goals are realized and that production models of faster chips become available.

Burn-in and 9MHz

The life of a computer chip is completely down hill; the only question is how fast it declines, and how soon. A chip is at its best when it is new. After 4-8 weeks of normal use, there is a noticeable decline in the maximum speed at which the chip can operate reliably.

A "good" chip stabilizes at a level consistent with its specified range of operation and performs reliably for a long but indeterminate period of time. Such a stabilized chip is said to be "burned in". Eventually, rapid decline sets in once again,

and the chip "burns-out" and fails.

A "bad" chip never stabilizes but instead continues to decline. That is why bad chips usually show up during the first few weeks you own your equipment.

The remedy for a burned-in chip that will no longer run at a higher speed is to increase the voltage available for its operation. The special AE 5.25 volt power supply will resolve most of these problems, assuming the chip has not entered the final failure portion of the curve.

it. Then change the processor and install a 40 MHz oscillator following the instructions for the 9 MHz upgrade I described last month. That article presents the necessary detailed instructions.

Test your system by using the procedure I described last month for the "Simple Oscillator Swap". If your system fails, you should install the 32K cache upgrade I described in the first article in this series. That upgrade enhances performance

Computing Efficiency

I once assumed that there was a linear relationship between processing speed and computer performance; that is, I expected each doubling of processor speed to result in a doubling of throughput. However, my tests show that you gain somewhat less performance with each increase in processor speed. That is caused by the nature of caching accelerators and the speed limitations built into the IIGS motherboard, especially the 1.0 MHz limit for the video firmware. When processing speed reaches 17-20 MHz, further acceleration might not yield a difference that is detectable in normal use.

How to Tell If Your CPU is Failing

Once you've upgraded your TWGS to 10 MHz, you should know how to tell if it starts to fail.

The 65C816 has its greatest difficulty while executing 16-bit instructions. Thus, the chip is most likely to fail when running 16-bit GS/OS applications such as AppleWorks GS and HyperCard IIGS. (Note that AppleWorks uses 16-bit instructions when you boot the program on a IIGS or run the spreadsheet module on IIGS systems. Therefore, failures in those operations can also indicate deterioration of your high speed CPU.)

If these problems occur, replace the fast oscillator with the original 28

MHz unit. If that cures the problem, you probably have a CPU that can no longer work at the higher speed at the current voltage. I suggest that you increase the system voltage or change the oscillator and settle for slower operation.

Failures that occur regularly in both 8-bit and 16-bit programs suggest either a rapidly deteriorating CPU or the inability of some other component on the TWGS to work at the current voltage. SRAMs and GALs are the most likely culprits. The 5.25 volt power supply may help them as well.

significantly and provides faster SRAMs that let the CPU operate more reliably at higher speeds.

If your system fails after you install the cache upgrade, replace the #2, #3, #4, and #5 GALs with high performance versions.

If neither procedure succeeds, replace the SRAMs on the 32K cache piggy backboard with 25 or 15ns versions, or take your system to a qualified technician and raise the output from the AE power supply to 5.5 volts. That exceeds the range of recommended voltages for the IIGS and you make this change at your own risk. However, I have operated my system at 5.5 volts without any apparent harm.

The final practical solution is to replace the four remaining GALs (#1, #6, #7, and #8) with high

speed versions. Beyond that, you must consider extreme measures (such as adding a cooling unit) which are beyond the scope of this article. Otherwise, you can wait for Western Design to offer better 65C816 processors. Until then, replace your 40 MHz oscillator with a 36 MHz version and enjoy 9 MHz performance.

Final Thoughts

Reaching 10 MHz requires a new processor, a 40 MHz oscillator, possibly one or more new GALs, a new power supply, a fan, and possibly faster SRAMs. The total expense for these items is significantly greater than that required for a 9 MHz upgrade, and even then, successful 10 MHz performance is not guaranteed.

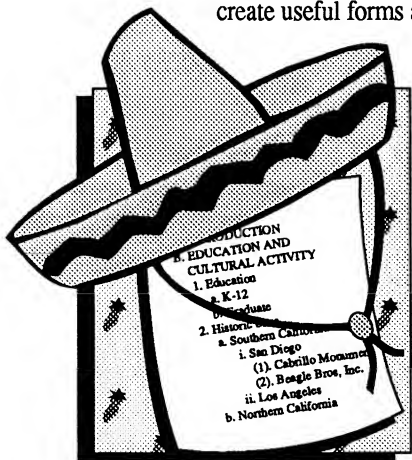
Nonetheless, upgrading to 10 MHz will appeal to users such as myself, who derive satisfaction from having the highest attainable performance from their system. In addition, the heavy duty power supply and fan required to achieve 10 MHz will add to the reliability and longevity of any system.

[John Link is an AppleWorks consultant and the developer of SuperPatch and LockOut. The author and NAUG extend special thanks to Steven Malechek of Applied Engineering for his help preparing this article.]

[NAUG members can buy the engineering-grade 65C816 processor directly from Western Design Center for \$71.25 (list price: \$95) plus shipping. Contact Deb Lamoree at Western Design (602) 962-4545 and identify yourself as a NAUG member to get the details of this offer.]

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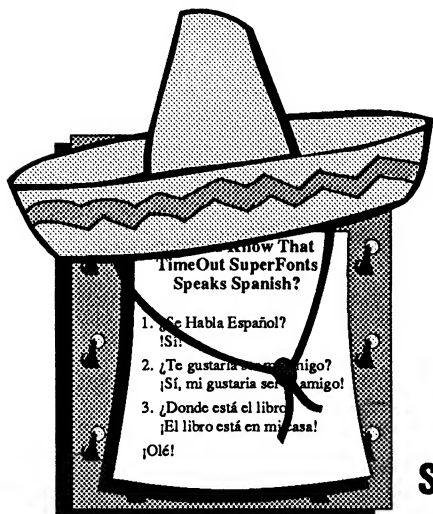
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Lock Your Templates

by Stan Hecker and Warren Williams

You probably know that you can write-protect a disk by covering the write-protect notch on a 5.25-inch disk or by opening the write-protect slide on a 3.5-inch disk. You can then read any file on the disk but cannot delete or over-write the data or programs on the disk.

Did you know that you can write-protect (or “lock”) individual AppleWorks files? You can read a locked file into AppleWorks but cannot accidentally erase the file from the disk or over-write the file. That lets you protect your checkbook template, gradebook template, or letterhead. Locked files are particularly useful to AppleWorks teachers who prepare disk-based assignments for their students.

Like write-protecting disks, the locking process is easily reversible.

There are at least three ways to lock and unlock your files.

TimeOut FileMaster

TimeOut FileMaster is a complete disk and file utility program that runs within AppleWorks, thus FileMaster lets you lock and unlock files without leaving the AppleWorks environment. Follow these steps:

1. Select FileMaster from the TimeOut Menu.
2. Press the Return Key to select File Activities from the FileMaster Menu.
3. Highlight “Lock files” on the File Activities Menu. Press the Return Key to list the files on the current disk or directory. Enter an Apple-Return to change disk drives or directories. FileMaster will list all the files on the current disk.
4. Highlight the file you want to lock and press the Return Key. (You can also use the Right-Arrow Key to “mark” the files you want to lock, then press the Return Key to lock multiple files in one operation.)

Copy II+

Copy II+ is a popular disk utility program from Central Point Software. Follow these steps to lock one or more files with Copy II+:

1. Boot your computer with the Copy II+ disk or use a program selector to launch UTIL.SYSTEM.
2. Select “Lock/Unlock Files” from the Copy II+ Main Menu.
3. Select the drive that contains the file(s) you want to lock. If there are subdirectories on the disk, Copy II+ will display a “map” of the disk. Use the Arrow Keys to highlight the appropriate subdirectory and press the Return Key.
4. Highlight each file you want to lock and press the Return Key. Then press the letter “G” (for “go”) to lock the files.

BASIC

If you don’t have FileMaster or Copy II+, you can use BASIC to lock and unlock your files. Follow these steps:

1. Get into BASIC by using the System Utilities that came with your computer or whichever way you launch the ProDOS version of BASIC.
2. With the BASIC prompt (“>”) on the screen, type `PREFIX /directory` where “directory” is either (a) the name you assigned to the disk when you formatted the volume, or (b) the pathname to the subdirectory that contains the files you want to lock. *[Ed: For more information about pathnames and subdirectories, see the article entitled “What AppleWorks Users Should Know about ProDOS Pathnames” in the AppleWorks Handbook: Volume One.]*
3. Type `LOCK filename` where “filename” is the name of the file you want to lock.

AppleWorks Add-Ons...

4. Issue the command `cat` to display an abbreviated catalog of the disk. The asterisk next to the filename indicates that the file is locked.

Unlocking Files

Unlocking files with FileMaster or Copy II+ is easy; just select "Unlock Files" from the appropriate menu.


To unlock files with BASIC, follow the steps described above but type the command `UNLOCK` instead of `LOCK` in step #3.

Testing with AppleWorks

To test this feature, boot up AppleWorks, load the locked template onto the desktop, and try to save it. AppleWorks will display the message "Unable to erase the old information. New information was not saved on disk".

You've done it; your template is protected.

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Quick Tip

Better ImageWriter Output


by Gary Armour

If you use an ImageWriter, try printing a superscripted character in the first line of a document. Many ImageWriters move too far down the page after the superscripted character and print the right half of the line too low on the page. Other lines containing superscripts will print correctly.

To eliminate this problem, put a Superscript Begin and Superscript End command at the beginning of the document. That "jiggles" the printer so the entire line, including the superscripted character, prints correctly.

The Superscript Begin/End trick also solves many other first line printer problems, including uneven printing when you use the built-in Near Letter Quality mode in the ImageWriter. If you are unhappy with the first printed line of your output, try putting the Superscript Begin and Superscript End commands at the beginning of every document you send to your printer.

[Gary Armour is Computer Coordinator for Rangely School District Re-4, in Rangely, Colorado.]

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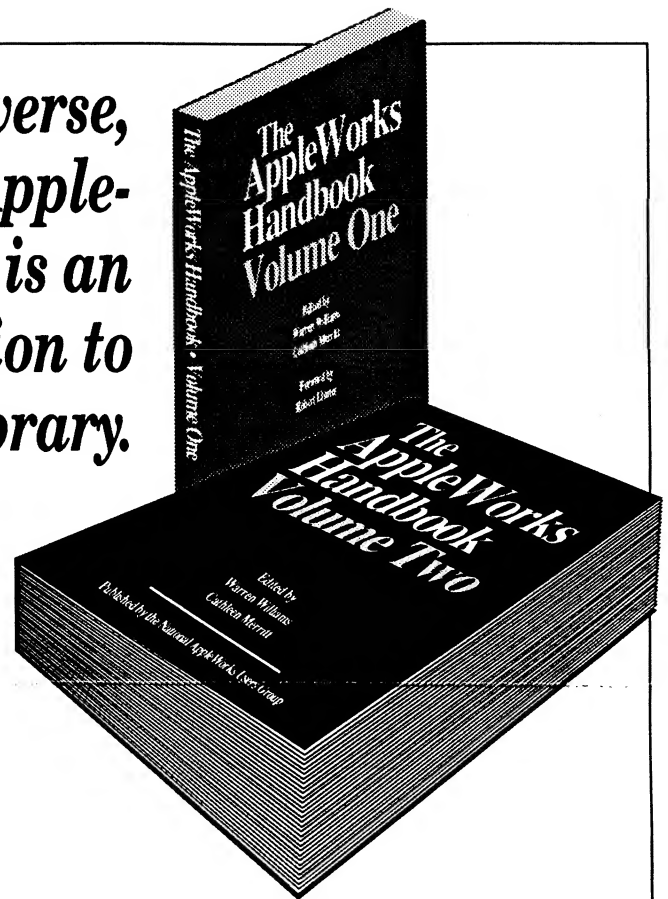
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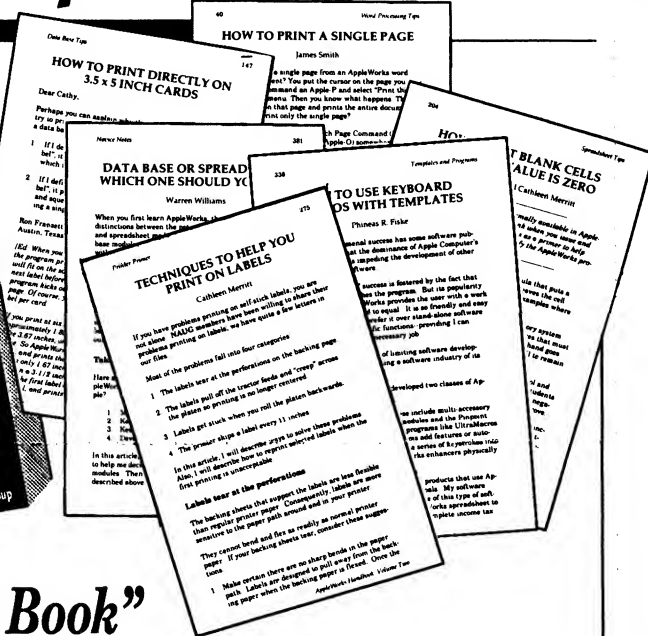
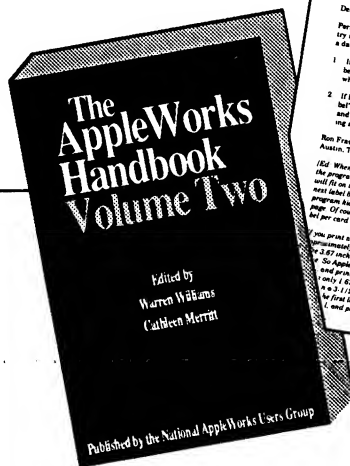
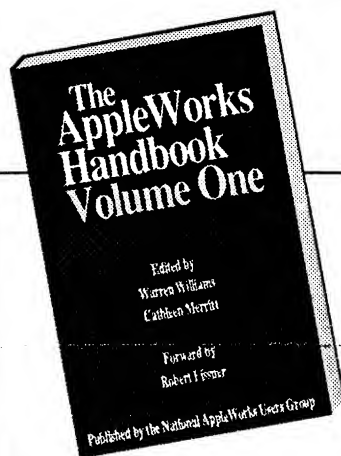
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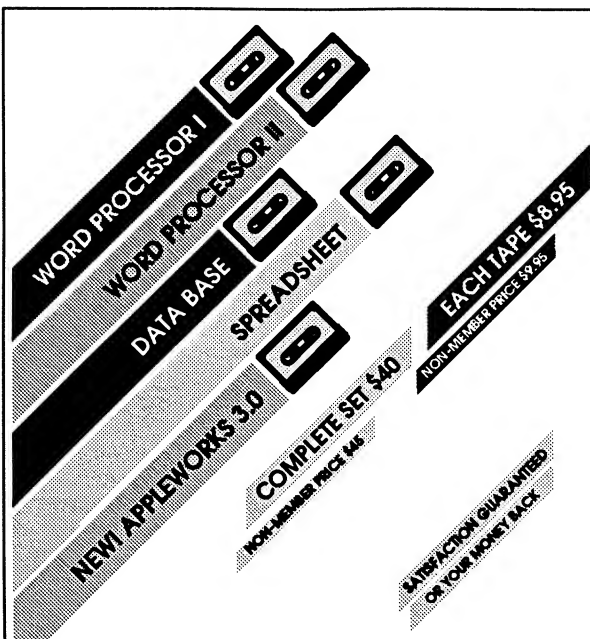
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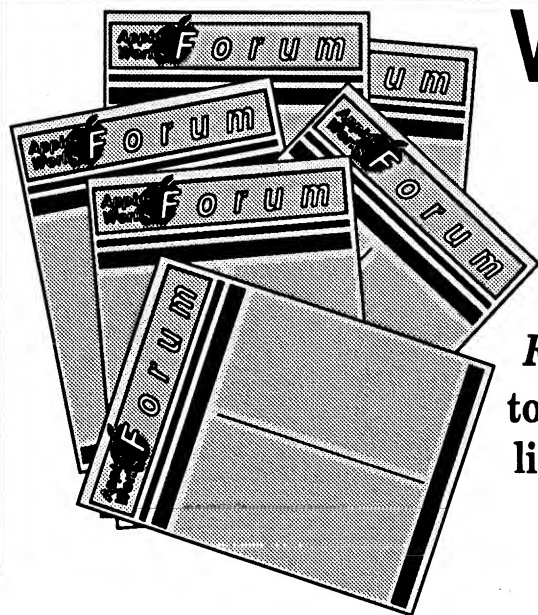
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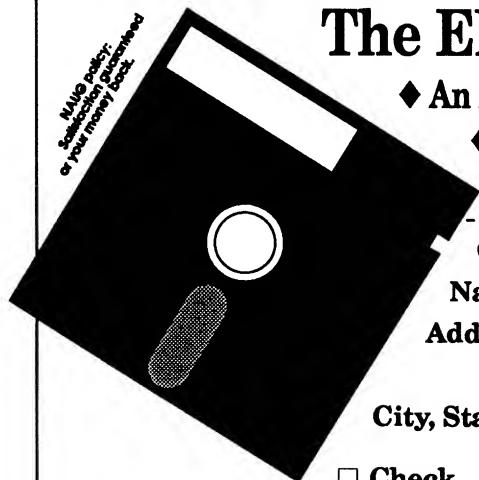
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Use <oa-Rtn> to Save Time

by Bill Neef

By now, you certainly know about the many new and well documented features Claris added to AppleWorks 3.0. [Ed: See the article entitled "AppleWorks 3.0: A Major Upgrade" in the July 1989 issue of the *AppleWorks Forum* for a description of these new features.] AppleWorks 3.0 also offers some useful keystroke commands that save time when you work. For example, the Control-N, Control-P, Control-C, Control-F, and Control-R keystrokes are well documented. Less well documented are the many functions of the new Open-Apple-Return (<oa-rtn>) command.

What makes the <oa-rtn> command difficult to learn is the different functions it serves throughout AppleWorks. In addition, the availability and purpose of the <oa-rtn> option rarely appears in the prompts at the bottom of the screen.

This article describes some of the applications of <oa-rtn> keystroke combination. I admit that I learned most of these applications of <oa-rtn> from articles that appeared in previous issues of the *AppleWorks Forum*.

File Management

Save all desktop files: The <oa-rtn> command automatically saves all desktop files back to their original disk or subdirectory. Follow these steps:

1. With the AppleWorks Main Menu on the screen, select #3 "Save Desktop files to disk".
2. Press the Open-Apple-Right-Arrow Key combination to select all desktop files.
3. Press <oa-rtn>.

Save all new or changed desktop files and clear the desktop: Follow these steps to use <oa-rtn> to save all new or changed files back to their original disk or directory and then remove them from the desktop:

1. With the AppleWorks Main Menu on the screen, select #4 "Remove files from the Desktop".

2. Press the Open-Apple-Right-Arrow Key combination to select all desktop files.
3. Press <oa-rtn>.

Enter a new ProDOS pathname: AppleWorks 3.0 makes it easier to navigate through the subdirectories on a disk. For example, AppleWorks 3.0 lets you access a subdirectory by highlighting the subdirectory on the catalog of AppleWorks files and pressing the Return Key. However, users familiar with pathnames often find this "point-and-shoot" option tiresome; you sometimes have to navigate through two or three levels of subdirectories to get the files you want to list on the screen.

Here is how to use <oa-rtn> to navigate to a subdirectory without using "point-and-shoot":

1. With the Main Menu on the screen, select choice #1, "Add files to the Desktop".
2. With the Add Files Menu on the screen, select #2, "A different disk".
3. With the Change Current Disk Menu on the screen, enter an Up-Arrow to highlight "ProDOS Directory". Then enter an <oa-rtn>. You can then "yank" out the current pathname (with Apple-Y) and type the pathname to any subdirectory.

AppleWorks Word Processor

While working in the AppleWorks 3.0 word processor, entering an <oa-rtn> jumps the cursor to the beginning of the next line without inserting a Return.

TimeOut UltraMacros

Compile macros without confirmation: <oa-rtn> lets you avoid the "Pause each line?" and "Compile from?" questions when you compile a macro. Proceed as follows:

1. Display the word processor file containing the macro(s) you want to compile on the screen.

2. Enter an Apple-Escape to invoke the TimeOut Menu and select Macro Compiler.
3. With the Macro Compiler Menu on the screen, highlight "Compile a new set of macros".
4. Enter an <oa-rtn> to compile the current file without responding to the "Pause each line?" and "Compile from?" questions. The <oa-rtn> also skips the confirmation of the completed compilation and returns you to the word processor file that contains the macros.

Return to default macros: <oa-rtn> makes it easy to restore your default macro set. Follow these steps:

1. Enter an Apple-Escape to invoke the TimeOut Menu and select Macro Options.
2. With the Macro Options Menu on the screen, enter an <oa-rtn> to display the full pathname to the file ULTRA.SYSTEM.
3. Press the Return Key to reinstall your default task file.

TimeOut FileMaster

Change current device: FileMaster assumes that you want to use the current disk or directory when you select actions from the program's File Activities and Disk Activities Menus. <oa-rtn> lets you change devices or directories when you select a choice from those menus. For example, to list files on the current disk, select "File Activities" from the FileMaster Menu and select "List files" from the File Activities Menu. To change devices, highlight "List files" and enter an <oa-rtn>. The <oa-rtn> keystroke combination works with every option on these menus.

Enter a new ProDOS pathname: <oa-rtn> lets you enter a complete ProDOS pathname to any subdirectory. Follow the procedures described in "Enter a new ProDOS pathname" under "File Management" above.

Delete files from disk: <oa-rtn> lets you use FileMaster to delete files from the current disk or subdirectory without responding to the "Are you sure?" prompt for each file. Follow these steps:

1. With the FileMaster Menu on the screen, select #1, "File Activities".

2. With the File Activities Menu on the screen, highlight choice #5, "Delete files".
3. Press the Return Key if you want to delete files from the current disk or directory. Enter an <oa-rtn> to change disks or directories.
4. Use the Right-Arrow Key to mark the files you want to delete. (Use Open-Apple-Right-Arrow to mark all the files.)
5. Enter an <oa-rtn> to delete those files and skip the confirmation message.

Conclusion

I am certain that this is only a partial list of applications of <oa-rtn> in AppleWorks and the AppleWorks enhancements. There must be dozens of applications that you can discover by entering an <oa-rtn> instead of just pressing the Return Key. Please write to NAUG and share your findings about <oa-rtn> with the AppleWorks community. ■

[William Neef is a retired purchasing agent for Welding Metals, Inc. and is Treasurer of the Apple Jackson (Mi) Users Group.]

LockOut 1.1

At last, protection for the IIGS Control Panel that really works! LockOut allows access to all Classic and New Desk Accessories (including both Control Panels), but prevents changes to the Control Panel from taking effect. Does not interfere with desk accessories which do not change the Control Panel. LockOut patches the system's firmware silently and automatically, during boot up. Instructions include information for installing LockOut on ProDOS-8, ProDOS-16, and GS/OS floppies, as well as AppleShare file servers and hard drives.

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Set the Date and Time Without a Clock

by Keith Johnson

Most Apple II users I know don't buy hardware or software unless they need it. For example, many of us who use Apple II+ and IIe systems don't have a clock card because we have a perfectly serviceable timepiece available on our wrist.

But clock cards offer a useful service: They let ProDOS automatically stamp the current date and time on any file you save. That helps you remember when you saved a file, or which of two versions of a file is the more up-to-date copy. In addition, the new Print Date and Print Time functions in AppleWorks 3.0 use these values when you print a document.

Now, Beagle Buddy Steve Ellis gives clockless AppleWorks users a way to set the time and date from within AppleWorks. Type in the two macros shown in *Figures 1* and *2* and compile them. Then enter a <sa-D> to enter or re-set the date. To change the time, press <sa-T> and follow the on-screen directions. From that point on, AppleWorks will stamp any file you save with those values.

Note that the date and time you enter will remain constant no matter how long you work; it's up to you to keep AppleWorks informed of the correct time.

These macros do not reset your clock, nor do they work if you have a clock in your system. Apple IIGS owners and owners of IIe and IIC systems with a clock can use these macros to change the date and time in ProDOS, but ProDOS will update those values from the system clock as soon as you do anything that requires a date or time stamp, such as saving a file.

Features

These macros demonstrate several interesting features. For example, note the error-checking that insures the user enters valid values in response to

the on-screen prompt. However, these macros accept the date of "February 30"; guarding against that kind of unlikely mistake requires more programming than it is worth.

The macros save the clock values in a portion of AppleWorks called the Environment Record and in memory locations within ProDOS. Thus, the entries are still valid if you set the date and time and then quit AppleWorks. For example, you can create a BASIC program after quitting AppleWorks and ProDOS will time stamp the file you save to disk.

Technical Details

Getting and storing the date is a complex process because ProDOS uses only two memory locations to store the day, the month, and the year. ProDOS uses one byte to store the last two digits of the year and *part* of the month number. The remainder of the month number and the day number form a second byte. (Apparently the developers of ProDOS were extremely conservative when it came to using memory. AppleWorks is less conservative; Lissner uses three bytes to store the different values.)

ProDOS manages the date bytes as follows: Seven bits (each of which is a "1" or a "0") can store the last two digits of the year. For example, "91" becomes "1011011". Imagine this value stored in a variable you express as "YYYYYYY".

Storing the month number in binary form requires four bits, thus April, month number 4, becomes 0100. Imagine this value stored in a variable you express as "MMMM".

ProDOS takes the seven year bits and attaches the *first* (high-order) bit from the month to the right (low-order) end of the year. It then stores this value

Figure 1: Date-Change Macro

```

start
D:call a = peek 49040 :           { Get ProDOS data data. }
b = a / 32 * 32 : d = a - b :     { Store ProDOS day value in variable d. }
a = peek 49041 : y = a / 2 :      { Store ProDOS year value in variable y. }
f = y * 2 : g = e - f * 8 : h = a / 32 : m = g + h : { Store ProDOS month value in variable m. }
msg ' Current ProDOS date is ' + str$ m + '/' + str$ d + '/' + str$ y + ' Change it? (n/y) ' :
begin :                             { Display a message with the current date and ask if it is okay. }
  k = key : $9 = chr$ k :          { Start a loop that captures the response. }
  if $9 = "N" or $9 = "n" then msg "" : stop : { Store the next keystroke in variable $9. }
  else :                           { If it's "N" or "n", blank the message and stop. }
    ifnot $9 = "Y" or $9 = "y" rpt : { If it's not "N" or "n"... }
  elseoff :                         { ...and it's not "Y" or "y", keep waiting. }
begin :                             { If it's "Y" or "y", continue. }
  msg ' Enter new MONTH and press RETURN, ESC to restart. ( e.g. 7 ) ' : { Display the instructions. }
  $1 = getstr 2 :                  { Store a 1-2 character entry in variable $1. }
  if $1 = "" then goto sa-D elseoff : { If the keystroke is a Return, start over. }
  m = val $1 :                    { Convert the month entry to a numeric variable. }
  if m < 1 or m > 12 then bell rpt : { Check for a valid month entry. }
  elseoff :                       { End the loop that captures the month. }
begin :                             { Start a new loop that captures the date. }
  msg ' Enter new DAY and press RETURN, ESC to restart. ( e.g. 30 ) ' : { Display the instructions. }
  $2 = getstr 2 :                  { Store a 1-2 character entry in variable $2. }
  if $2 = "" then goto sa-D elseoff : { If the keystroke is a Return, start over. }
  d = val $2 :                    { Convert the date entry to a numeric variable. }
  if d < 1 or d > 31 then bell rpt : { Check for a valid date entry. }
  elseoff :                       { End the loop that captures the date. }
begin :                             { Start a new loop that captures the year. }
  msg ' Enter new YEAR and press RETURN, ESC to restart. ( e.g. 90 ) ' : { Display the instructions. }
  $3 = getstr 2 :                  { Store a 1-2 character entry in variable $3. }
  if $3 = "" then goto sa-D elseoff : { If the keystroke is a Return, start over. }
  y = val $3 :                    { Convert the year entry to a numeric variable. }
  if y < 81 or y > 99 then bell rpt : { Check for a valid year entry. }
  elseoff :                       { End the loop that captures the year. }
  msg ' Your NEW date is ' + str$ m + '/' + str$ d + '/' + str$ y + ' Is this OK? (n/y) ' :
begin :                             { Display the entire date entry and ask if it is correct. }
  k = key : $9 = chr$ k :          { Begin the loop that handles the user's y/n response. }
  if $9 = "N" or $9 = "n" then goto sa-D : { Store the next keystroke in variable $9. }
  else :                           { If it's "N" or "n", start over. }
    ifnot $9 = "Y" or $9 = "y" rpt : { If it's not "N" or "n"... }
  elseoff : msg "" :               { ...and not "Y" or "y", keep waiting. }
  poke 3870,m :                   { If it's "Y" or "y", clear the message... }
  poke 3871,d :                   { ...and save the new values in AppleWorks'... }
  poke 3869,y :                   { ...Environment Record. }
  y = y * 2 :                     { Translate the data into ProDOS... }
  if m > 7 then y = y + 1 : m = m - 8 : { ...date format. }
  elseoff : m = m * 32 + d :
  poke 49040,m : poke 49041,y!    { And save it in the ProDOS locations. }

```

as an eight-bit binary number you can express as "YYYYYYM". ProDOS stores this data in location \$BF91 (decimal 49091).

Now express the day number as a five-bit binary number, "DDDDDD". For example, "12" becomes "01100". Add this to the right end of the remaining month bits, and you have the second date byte

MMMDDDDD, which goes in location \$BF90 (49090).

Thus, ProDOS stores "April 12, 1991" as "10110110" and "10001100" in locations \$BF91 and \$BF90 respectively.

Mr. Ellis deserves credit for developing a macro that translates this binary hamburger press into meaningful data we can use.

Figure 2: Time-Change Macro

```

start
T:call m = peak 49042 :           { Store ProDOS minutes in variable m.           }
    h = peak 49043 :             { Store ProDOS hours in variable h.             }
if h < 10 then $6 = "0" :         { Enter a leading zero for hours if necessary...   }
else $6 = "" elseoff :           { ...otherwise leave it blank.                     }
if h > 11 then $8 = "pm" :        { Set "p.m."...                                     }
else $8 = "am" elseoff :         { ...or "a.m."                                     }
if h > 12 then c = h - 12 :       { Convert from 24 to 12 hour time...               }
else c = h elseoff :             { ...but only if necessary.                         }
if h = 0 and m > 0 then c = 12 elseoff : { Handle the hour between 12:00 and 1:00.         }
if m < 10 then $7 = "0" :         { Set a leading zero for minutes if necessary...   }
else $7 = "" elseoff :           { ...otherwise leave it blank.                     }
msg ' Current ProDOS time is ' + $6 + str$ h + ':' + $7 + str$ m + ' (' + str$ c + '
    : ' + $7 + str$ m + $8 + ') Change it? (n/y) ' :
    { Display the current time and ask if it's OK.   }
begin :                                     { Start a loop that captures the user's response. }
    k = key : $9 = chr$ k :               { Store the next keypress in variable $9.         }
    if $9 = "N" or $9 = "n" then msg "" : stop : { If it's "N" or "n", clear the message and stop. }
    else :                                 { If it's not "N" or "n"...                         }
    ifnot $9 = "Y" or $9 = "y" rpt :       { and if it's not "Y" or "y", keep waiting.       }
    elseoff :                             { If it's "Y" or "y", continue.                   }
begin :                                     { Begin a loop that captures the new hour.         }
    msg ' Enter new HOUR (24 hr form) and press RETURN, ESC to restart. (e.g. 14) ' :
    { Display the instructions.                 }
    $1 = getstr 2 :                         { Store a 1-2 character entry in variable $1.     }
    if $1 = "" then goto sa-T elseoff :     { If the keystroke is a Return, start over.       }
    h = val $1 :                           { Convert the hour entry to a numeric variable.   }
    if h < 0 or h > 23 then bell rpt :       { Sound the bell if not a valid hour entry.       }
    elseoff :                             { End the loop that captures the hour.             }
begin :                                     { Begin a loop that captures the new minutes.     }
    msg ' Enter new MINUTES and press RETURN, ESC to restart. (e.g. 30) ' :
    { Display the instructions.                 }
    $2 = getstr 2 :                         { Store a 1-2 character entry in variable $2.     }
    if $2 = "" then goto sa-T elseoff :     { If the keystroke is a Return, start over.       }
    m = val $2 :                           { Convert the minute entry to a numeric variable. }
    if m < 0 or m > 59 then bell rpt :       { Sound the bell if not a valid minutes entry.   }
    elseoff :                             { End the loop that captures the minutes.         }
    if h < 10 then $6 = "0" else $6 = "" elseoff : { Add a leading zero if necessary.               }
    if h > 11 then $8 = "pm"
    else $8 = "am" elseoff :               { Set "p.m."...
    { ...or "a.m."
    if h > 12 then c = h - 12 else c = h elseoff : { Convert from 24 to 12 hour time.
    if h = 0 and m > 0 then c = 12 elseoff :     { Handle the hour between 12:00 and 1:00.
    if m < 10 then $7 = "0" :
    else $7 = "" elseoff :                 { Set a leading zero for minutes if necessary...
    { ...otherwise leave it blank.
    msg ' Your NEW time is ' + $6 + str$ h + ':' + $7 + str$ m + ' (' + str$ c + '
    : ' + $7 + str$ m + $8 + ') Is this OK? (n/y) ' :
    { Display the entire time entry and ask if it is correct.
begin :                                     { Begin a loop that handles the user's y/n.
    k = key : $9 = chr$ k :               { Store the next keystroke in variable $9.
    if $9 = "N" or $9 = "n" then goto sa-T : { If it's "N" or "n" start over.
    else :                                 { If it's not "N" or "n"...
    ifnot $9 = "Y" or $9 = "y" rpt :       { ...and not "Y" or "y", keep waiting.
    elseoff : msg "" :                     { If it's "Y" or "y", clear the message...
poke 3872,h :                             { and save the new values in AppleWorks'...
poke 3873,m :                             { ...Environment Record...
poke 49043,h : poke 49042,m!              { ...and store the data in the ProDOS locations.

```

[Keith Johnson is Associate Director of the Fleis-
chmann Planetarium at the University of Nevada.
Steve Ellis is the AppleWorks SIG leader and Bea-

gle Buddy for the Orange Apple Computer Club in
Orange County California.]

News and Special Offers for NAUG Members

NAUG

NAUG will host an AppleWorks conference at 9pm EDT Sunday, May 19 on America Online. Join us in the AppleWorks Conference Room (Keyword: AW) for an enjoyable hour of friendly exchange about NAUG and AppleWorks.

Apple IIGS owners who use foreign versions of AppleWorks or any other foreign language software will be interested in the foreign language keyboard templates now available from NAUG. These are full-page depictions of the function of each key when you configure the keyboard for different languages. Templates include the U.S., British, French, Swedish, Spanish, Italian, French Canadian, and Norwegian keyboards. The 10-page publication costs \$4 including first class postage from NAUG.

NAUG can also provide members with the following publications:

Release Notes for GS/OS 5.0.4: Technical notes of interest to developers. 21 pages. Source: Apple Computer. \$5.

File Formats for AppleWorks and /// E-Z Pieces: Describes the format AppleWorks uses to store data on disk. Useful for AppleWorks developers. 27 pages. Source: Claris Corporation. \$10.

AppleWorks 3.0 Entry Points: Describes the "hooks" available in AppleWorks. Useful for AppleWorks developers. 44 pages. Source: Claris Corporation. \$12.50.

Panasonic Printer Codes: Describes how to configure AppleWorks to use the features available on Panasonic dot matrix printers. 8 pages. Source: Stan Hecker. Free; send NAUG a self-addressed #10 envelope with 52 cents postage.

Geometry Worksheet: An example of the output available from an ImageWriter if you use Mitchell Bernstein's Geometry Disks available from

NAUG's Public Domain Library. 2 pages. Source: Mitchell Bernstein. Free; send NAUG a self-addressed, stamped envelope.

Trigonometry Worksheet: An example of the output available from an Imagewriter if you use Mitchell Bernstein's Trigonometry Disks available from NAUG's Public Domain Library. 2 pages. Source: Mitchell Bernstein. Free; send NAUG a self-addressed, stamped envelope.

Apple IIGs: Apple Access II Setup and Startup Issues: Describes how to use the Apple Access II telecommunications program on IIGS computers. 2 pages. Source: Apple Computer. Free; send NAUG a self-addressed, stamped envelope.

AppleTalk on the Apple II Workstation: Describes how an Apple IIe equipped with an AppleTalk Workstation Card interfaces with an AppleTalk network. 6 pages. Source: Apple Computer. \$1.

Troubleshooting a LocalTalk or Macintosh-Based Network: Describes how to de-bug common problems that occur with LocalTalk networks. 11 pages. Source: Apple Computer. \$2.

AppleWorks GS Word Processor File Formats: Describes the format AppleWorks GS uses to store word processor files on disk. Useful for AppleWorks GS developers and others curious about AppleWorks GS file structures. 7 pages. Source: Claris Corporation. \$2.

Apple II Technical Notes: More than 750 pages of valuable technical information from Apple Computer. Includes the complete collection of Apple II Technical and File Type Notes. 757 pages. Source: Apple Computer. \$43 plus \$5 s/h. Also available on 3.5-inch disks; \$16 plus \$2 s/h.

[National AppleWorks Users Group, Box 87453, Canton, Michigan 48187; (313) 454-1115.]

ActaSoft

ActaSoft produces AlphaCheck and AlphaCheck Plus, two easy-to-use, powerful financial management and check writing programs that work within AppleWorks. AlphaCheck, which is a single entry system, is well suited for users who want to make it easy to pay bills and keep their tax records.

AlphaCheck Plus, which supports both single entry and double entry accounting, maintains a general ledger and produces trial balances, expense reports, vendor reports and cash disbursement journal reports. Both programs create standard data base files you can review and manipulate with AppleWorks.

AlphaCheck and AlphaCheck Plus require AppleWorks 3.0 and an Apple IIc, IIc Plus, enhanced IIe, or IIGS computer.

AlphaCheck lists for \$49.95, however, until July 1, NAUG members can buy the program directly from ActaSoft for \$19.95 plus \$2.50 s/h. The company earlier sold AlphaCheck to members for \$29.95 and offers members who purchased AlphaCheck after April 1 a \$10 rebate. Please contact that company to arrange for the refund.

NAUG members can buy the AlphaCheck Plus program directly from ActaSoft for \$39.95 plus \$3.50 s/h (list price: \$68).

Identify yourself as a NAUG member and provide your NAUG membership number when you contact the company.

[ActaSoft, 19700 Wells Drive, Woodland Hills, California 91364; (818) 996-6731.]

Beagle Bros

NAUG members who have not received one of Beagle Bros' new humorous and informative catalogs should contact the company for a copy.

Beagle is about to release Companion Plus, an upgrade of Mark Munz and Randy Brandt's popular AW 3.0 Companion enhancement to AppleWorks. (See the February 1990 issue of the *AppleWorks Forum* for a complete description of the AW 3.0 Companion.) Companion Plus includes all the original AW 3.0 Companion patches and adds a spell checker patch that modifies the AppleWorks

3.0 spell checker so it provides more suggestions in response to the "Get suggestions" prompt. That lets AppleWorks' spell checker work more like Time-Out QuickSpell.

Companion Plus also includes an enhanced clock patch that displays both the date and time on the AppleWorks screen. Other programs on the disk (a) automatically copy your AppleWorks spelling dictionaries onto a RAM disk, and (b) tell you which patches you have installed on your copy of AppleWorks.

Companion Plus will also include version 1.6 of the AppleWorks 3.0 Patch Disk. A description of the Patch Disk appears on page 28 of this issue of the *AppleWorks Forum*.

Companion Plus has a suggested list price of \$49.95; NAUG will distribute the program for \$29.95 plus \$3.50 s/h. Owners of the AW 3.0 Companion can upgrade to Companion Plus for \$20 plus \$3.50 s/h directly from Beagle.

[Beagle Bros, 6215 Ferris Square, Suite 100, San Diego, California 92121; (619) 452-5500.]

Marin MacroWorks

ULTRA-AppleWorks is a twelve-lesson tutorial that teaches readers how to use TimeOut Ultra-Macros. The text includes descriptions of all the macro tokens and numerous tips, sample macros, and reference charts. Novices will like the step-by-step approach; power users will appreciate the list of 100 Peek and Poke addresses provided by the author. The ULTRA-AppleWorks manual is fully indexed.

Until June 30, NAUG members can get ULTRA-AppleWorks as a printed, spiral-bound manual with an accompanying disk of sample macros for \$22.50 plus \$3 s/h (list price: \$24.95), or entirely on disk for \$17.50 plus \$3 s/h (list price: \$19.95). Both formats include a Table of Contents and an Index. Identify yourself as a NAUG member and indicate whether you want the print or disk version and 3.5-inch or 5.25-inch disks when you order. Mail orders only; no credit cards. Requires AppleWorks 3.0 enhanced with UltraMacros 3.1.

[Marin MacroWorks, 1675 Grand Avenue, San Rafael, California 94901.]

Quality Computers

Quality Computers recently released Gary Morrison's Q Learning System, a computer-based student testing and data-maintenance program that helps teachers individualize instruction. The Q Learning System administers tests you develop, grades the tests, prints student reports that indicate which objectives were achieved and which were missed, and stores the results in a gradebook. Students who retake the test receive a different set of test items from the item pool you develop.

The Q Learning System accommodates courses with up to 20 units, 20 projects, and 20 laboratory exercises. The system automatically enters student test scores into the gradebook; you must enter project and laboratory scores manually.

Site licenses cost \$179 for an elementary school, high school, or post-secondary academic department.

Teachers can get a free demonstration disk by writing to Quality Computers on school letterhead or by downloading the files from the Apple Education Forum on American Online.

Quality Computers now gives NAUG members a \$5 discount on all orders over \$100. Identify yourself as a NAUG member and provide your NAUG membership number to qualify for this discount.

[Quality Computers, Box 665, St. Clair Shores, Michigan 48080; (800) 443-6697.]

Scholastic

Teachers and other educators can now get a free copy of *The Scholastic Guide to Educational Computer Networks*, a 52-page booklet with information about the design, selection, and implementation of computer networks. The guide includes suggestions to help you select a network and a list of vendors.

The booklet offers a generic introduction to networks, including some of the basic terminology associated with networks, and a description of the networks implemented in six different schools.

[Scholastic, Inc., 730 Broadway, New York, New York 10003; (800) 541-5513.]

A Problem with Headers and Footers

by Mitchell Bernstein

AppleWorks 3.0 offers more than 100 features not available in earlier versions of the program. But along with those features came some "bugs", including one that can impact word processor users who use headers or footers in a document.

If you prepare documents containing headers or footers in AppleWorks 3.0, you will eventually encounter the message "A header/footer is too big". The message occasionally appears when you use the Apple-K command to calculate page breaks or when you try to print the document. AppleWorks will refuse to print until you eliminate the "error", even though there is often nothing wrong with the header or footer.

Most often, the error message is the result of a page break that occurs within a header or footer for one of the following reasons:

1. You included a New Page Command within a header or footer.
2. You put the header or footer on an existing break so the page break appears between the Header/Footer Begin and Header/Footer End command.
3. You added or removed text that precedes an existing header or footer so the header or footer falls on a page break.
4. You changed the margins or characters per inch settings, thus moving the page break into the header or footer.
5. You changed the number of lines in a previous header or footer, thus moving the page break into a later header or footer.

The easiest solution to this problem is to move the header or footer to a different location within the document. Another alternative is to change any of the other conditions such as margins or characters per inch so the header or footer does not include a page break.

New Disks in NAUG's Public Domain Library

AppleWorks 3.0 Patch Disk — Version 1.6

NAUG's Public Domain Library now includes version 1.6 of the AppleWorks 3.0 Patch Disk. The newest version of this disk includes the nine bug fixes that appeared in earlier versions of the program. Version 1.6 also fixes a data base bug that can lock up your system. The lock-up occurs if you rearrange the records from A-Z or Z-A in a data base file with more than 12,000 records.

In addition, version 1.6 clears up the confusion about which version of the patches you installed on your copy of AppleWorks. The bottom of the Main Menu Help Screen now displays "Patched with version 1.6" instead of the cryptic symbols used in earlier versions of this program.

The AppleWorks 3.0 Patch Disk is a self-booting disk; you boot the disk, tell the program where to find your copy of AppleWorks 3.0, and the program installs all the necessary patches.

Our thanks to Mark Munz for donating this disk to NAUG's Public Domain Library and to Mark Munz, Alan Bird, Randy Brandt, and Rob Renstrom for developing the patches on this disk.

Bunker's Documentation Utilities

NAUG's Public Domain Library now includes Bunker's Documentation Utilities, a collection of valuable programs that can display or print text files. Files on the disk include:

DOGPAW: Displays and/or prints ASCII test files, files compressed with Mr. Bunker's COMPRESSOR program (see below), and AppleWorks files without launching AppleWorks.

COMPRESSOR: Creates compressed files you can display or print with DOGPAW. Compresses ASCII text and AppleWorks word processor files.

BEEEXTER: Converts AppleWorks word processor and ASCII text files into binary files you can BRUN

to send readable output to the screen or printer.

DOC.GETTER: Converts ASCII text and AppleWorks word processor files into Applesoft strings which are word-wrapped for either 40-column or 80-column screens. You can display or print these strings with DOC.SCREENER, which is also on this disk.

SCLU: A screen layout utility that makes it easy to design title pages, menus, and other heavily formatted screens for BASIC programs.

DBWorks

DBWorks is a stand-alone BASIC program that lets you overcome some of the limitations of AppleWorks' data base module. DBWorks lets you add additional categories to an existing data base file without losing your report and screen formats. You can leave the new categories blank or fill them in with any constants you specify. You can also add data in a text file to records in an existing AppleWorks data base file. That is useful for AppleWorks users who want to add data provided by test scoring services or other agencies to existing records in a data base file.

DBWorks is compatible with files prepared by any version of AppleWorks. The program requires an Apple IIc, IIc Plus, IIGS, or enhanced Apple IIe computer with at least 128K of RAM. DBWorks comes on a bootable disk that includes the current version of ProDOS and BASIC.SYSTEM. DBWorks is shareware. The author, Bernard Simmons, requests a \$10 payment if you use the program.

Fonts Disks

The NAUG Public Domain Library now includes 32 new disks of GS/OS-compatible fonts that contain more than 100 different font families. These fonts work with TimeOut SuperFonts, AppleWorks GS, GraphicWriter III, BeagleWrite, and all other

Public Domain Update...

16-bit GS/OS programs that use standard IIGS fonts. For a complete list of the fonts on these disks, send a self-addressed #10 envelope with 52 cents postage to Fonts List, NAUG, Box 87453, Canton, Michigan 48187. Our thanks to William Davis for collecting and organizing these fonts for the NAUG Library. Each disk costs \$4 (5.25-inch format) or \$6 (3.5-inch format) plus \$2 s/h *per order* from NAUG.

NAUG members can get sample printouts of the fonts on these 32 disks for \$16. Printouts of the fonts on NAUG's original 11 fonts disks costs \$8, and sample printouts of all 43 fonts disks in NAUG's library costs \$24. All prices include postage. These samples can help you learn about the fonts on the disks and make it easy to find the best font for an application. Order the sample printouts from John Sambataro, Box 290788, Fort Lauderdale, Florida 33329.

GS/OS 5.0.4

The NAUG Public Domain Library now includes GS/OS 5.0.4, a maintenance release that fixes bugs in version 5.0.3 of the company's Apple IIGS operating system. Other than bug fixes, version 5.0.4 is functionally equivalent to GS/OS 5.0.3.

GS/OS 5.0.4 comes on two 3.5-inch disks and costs \$12 plus \$2 s/h. You should follow the installation instructions that appear in the article entitled "How to Install GS/OS 5.0.3" in the January 1991 issue of the *AppleWorks Forum*. NAUG recommends that members running GS/OS should update to version 5.0.4.

RAM Loader

The NAUG Public Domain Library now includes RAM Loader, a program that automatically loads AppleWorks 3.0's spelling dictionaries onto a RAM disk and patches AppleWorks so the program uses those dictionaries when you spell check a document. This dramatically enhances the speed of AppleWorks' spell checking routines. A unique feature of RAM Loader is the program's ability to automatically save your custom dictionary back onto a floppy or hard disk when you add words.

RAM Loader is shareware. The author, Brian Wells, requests a \$10 payment if you use the excellent programs on the disk.

Sneeze

Sneeze is Karl Bunker's new text-display, menu, and program launcher. Sneeze lets you navigate through disks and directories, launch BASIC.SYSTEM, and 16-bit programs, print and/or display AppleWorks word processor files, display the more popular graphic files without launching the application used to create the files, and copy files. Sneeze runs on all Apple IIc, IIc+, IIfx, and IIGS computers, and most Apple II compatibles.

Space Flight Information

NAUG's Space Flight Information Disk includes ten word processor files that describe the missions in the Mercury, Gemini, and Apollo programs, describe the Lunar Rover, present biographical data about the astronauts, and describe future space missions. These NASA files include descriptions of the different space flights supported by the agency. The files on this disk are interesting to space flight buffs and to teachers who seek reference material for units on space exploration.

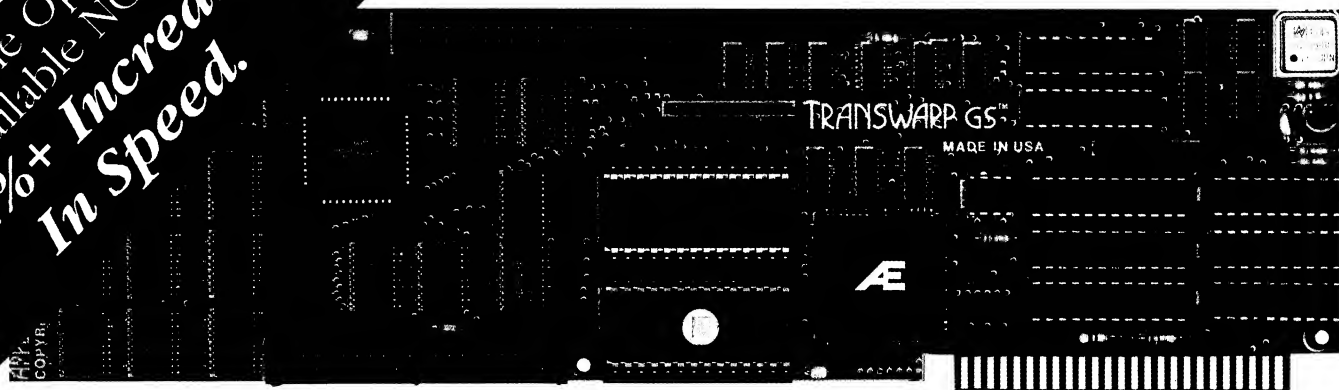
Trees Disk

NAUG's Trees Disk includes an AppleWorks data base file with information about 75 species of trees. Word processor files on the disk describe how to use the data base to classify and sort the botanical data. The Trees Disk was originally prepared as a high school science project; the files on the disk demonstrate one way to use AppleWorks to help develop higher order cognitive skills. Our thanks to tenth grade student Rebecca Neff for developing and submitting the files on this disk.

How to Get Disks

Unless otherwise noted, all disks are available in both 5.25-inch (\$4) and 3.5-inch (\$6) format, plus \$2 *per order* for shipping and handling. Order from NAUG, Box 87453, Canton, Michigan 48187. All NAUG disks are also available for downloading from NAUG's electronic bulletin board, the Electronic Forum, and from the NAUG areas on CompuServe, America Online, and GENie. Shareware payments go directly to the author, not to NAUG.

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"TransWarp GS has performed flawlessly ... I've become addicted to computing at warp speed ... once you get a taste, you'll wonder how you ever got anything accomplished with your IIGS lumbering along at an unaccelerated pace ... it's an improvement you're going to appreciate every time you place your fingers on the keyboard."

— Owen Linzmayer, Technical Editor, A+

"I'm stunned ... bordering on speechless. I used to dread waiting and waiting to run GS/OS. I don't anymore. TransWarp GS breathes new life into my computer. Thanks AE, you guys are in a class by yourselves."

— Joe Kohn, The Source

"Once I started using the original TransWarp in my old IIe, I found I couldn't do without it, TransWarp GS promises to be equally indispensable."

— Lafe Low, Review Editor, Incider

"This is the card you want. Sell whatever secondary peripherals you must in order to get a TransWarp GS plugged in."

— Joe Abernathy, Houston, TX

"Together with my RamKeeper, you have given me a color Mac at one-third the price. Thanks."

— Richard Artz, Ft. Collins, CO

"I have conducted some recent tests which indicate that the 'little' IIGS (with TransWarp GS) outperforms the MacSE. Your engineering department should take a bow."

— George Dombrowski, Jr., Chicago, IL

"TransWarp GS will be the best \$400 you ever spent."

— Dan Muse, Editor in Chief, Incider

"WOW WOW WOW! I am completely blown away with how fast it goes. Unbelievable."

— Dean Esmay, A2-Central

"TransWarp GS is by far the best money I've spent on my GS since purchasing my DataLink. Hats off to everyone at AE for another great product!"

— Greg Dacosta, GENie

TransWarp GS is rapidly changing the way people use the Apple IIGS. Join the thousands of TransWarp GS owners who've discovered computing at Warp Speed. For more than nine years, Applied Engineering has led the way with proven, reliable products for the Apple II line. We plan to keep it that way. Thanks for the vote of confidence, folks.

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Calculations and Subtotals

by Dan Verkade

The functions I described in the earlier articles in this series work *within* a record. For example, the @SQRT(Field1) function calculates the square root of the amount in Field1 for every record in the report. Those functions are not cumulative; they do not “remember” any calculations from previous records.

ReportWriter offers five “cumulative functions” that accumulate the calculations from previous records. They are also called “range functions” because they operate on a range of numbers in the same field in different records. The primary application of the range functions is to summarize groups of data; for example, to compute subtotals and totals. This will become clear as you read about the functions and do the tutorial in this article.

Range Functions

@SUM(FieldName): Adds the numbers from the field FieldName in a series of records and keeps a running sum. For example, imagine three records each with a field called QUANTITY. The function @SUM(QUANTITY) produces the following results.

QUANTITY	@SUM(QUANTITY)
1	1
2	3
3	6

The @SUM function starts with a value of zero and adds the value of the next record to the sum of all the previous values.

@COUNT(FieldName): Counts the number of records in any group. FieldName can be any field; they all return the same count. ReportWriter counts blanks and zeros; nothing can prevent it from counting a record.

@AVG(FieldName): Computes the average value in the FieldName field. FieldName must be a numeric field. The average is the arithmetic mean, computed as $(X1 + X2 + Xn) / n$ where n is the

number of records. ReportWriter uses every record in the count (n) of this calculation, including records with an entry of zero or a blank in this field.

@RMIN(FieldName): Determines the minimum value in a numeric field for a group of records.

@RMAX(FieldName): Determines the largest value in a numeric field for a group of records.

Groups

The range functions keep running totals, averages, and counts that you can use to summarize the data for a “group” of records. A “group” is a collection of records that share a common element. For example, consider a distributor who sells pencils in Wyoming and Arizona. The sales for July are:

Arizona	
Phoenix	1000
Flagstaff	1600
Yuma	1200
Wyoming	
Cheyenne	2100
Casper	1300
Sheridan	900

ReportWriter can determine when the contents of a field changes and can use that information to determine when to summarize a group and continue with the next group. You can then use the @SUM function to display the results as:

Arizona	
Phoenix	1000
Flagstaff	1600
Yuma	1200

	3800
Wyoming	
Cheyenne	2100
Casper	1300
Sheridan	900

	4300

The records in this example are grouped by state. Therefore, ReportWriter prints the total every time the state name changes.

Tutorial

The following tutorial describes how to use these functions in your reports. Follow these steps:

1. Create a small AppleWorks data base named PencilSales and enter the following categories and data into the file:

State	City	Amount
Arizona	Phoenix	1000
Arizona	Flagstaff	1600
Arizona	Yuma	1200
Wyoming	Cheyenne	2100
Wyoming	Casper	1300
Wyoming	Sheridan	900

2. Launch ReportWriter and use the ReportWriter Editor to create a report called "SalesReport" following the layout in *Figure 1*. Data for the ReportWriter fields appears in *Figure 2*. The numbers within parentheses to the right of each field indicate the order in which you should enter the fields; do not enter the parentheses or the numbers into the report. PencilSales is the Master File for this report.

The SalesReport includes Header, Body, and Subtotal sections, indicated by the highlighted "H", "B", and "S" at the right margin. You define these sections by issuing an Apple-O to access the Options Menu and then choosing #2, "Section Position". Step-by-step directions appear in an earlier article in this series.

The Subtotal section tells ReportWriter which formulas compute subtotals (or other summarizations) in the body of the report.

3. Enter an Apple-G and "print" the report to the screen. It should look like this:

State	City	Amount
-----	-----	-----
Arizona	Phoenix	1000
		1000
Arizona	Flagstaff	1600
		1600
Arizona	Yuma	1200
		1200
Wyoming	Cheyenne	2100
		2100
Wyoming	Casper	1300
		1300
Wyoming	Sheridan	900
		900

As you can see, this is not a useful report because it simply repeats the amount in each record as the total.

4. Return to the ReportWriter Editor, put the cursor on the first asterisk in the "Total" field and issue an Apple-N. Choice #7, ("Reset") determines when ReportWriter resets the value in this field back to zero. The default entry, "After printing" resets the total back to zero after it prints each total. Change that option to "Never". That tells ReportWriter to never set the range functions to zero.

Press the Escape Key to return to the Editor.

5. Enter an Apple-G and once again print the report to the screen. Your report should look like this.

State	City	Amount
-----	-----	-----
Arizona	Phoenix	1000
		1000
Arizona	Flagstaff	1600
		2600
Arizona	Yuma	1200
		3800
Wyoming	Cheyenne	2100
		5900
Wyoming	Casper	1300
		7200
Wyoming	Sheridan	900
		8100

Since Total is never set back to zero, ReportWriter generates a running total of all of the sales within two states.

6. Now you will tell ReportWriter to print the total each time the State changes. Follow these steps:
 - A. Return to the ReportWriter Editor, put the cursor on the first asterisk in the Total field, and issue an Apple-N. Choice #6, "Print", controls when ReportWriter prints this field. The current setting, "Always", tells ReportWriter to print the total each time it prints a record.
 - B. Select choice #6 and then select "When <field name> changes". ReportWriter will display a list of the four fields in this report. Use the Arrow Keys to highlight State and press the Return Key. This tells Report-

ReportWriter Tutorial...

Writer to print the total only when it encounters a new entry in the State field.

- C. Press the Escape Key to return to the Editor, enter an Apple-G, and "print" the report to the screen. The report should look like this:

State	City	Amount
-----	-----	-----
Arizona	Phoenix	1000
Arizona	Flagstaff	1600
Arizona	Yuma	1200
		3800
Wyoming	Cheyenne	2100
Wyoming	Casper	1300
Wyoming	Sheridan	900
		8100

Note that the subtotal printed when the group changed from Arizona to Wyoming, and then at the end of the report.

Figure 1: Format for SalesReport

File: SalesReport			EDITOR	Escape: Main Menu
State	City	Amount		
-----	-----	-----		
***** (1)	***** (2)	***** (3)		
		***** (4)		
Type entry or use ⌘-commands			Row: 1	Col: 1
			⌘-? for Help	

Figure 2: Field Definition Table

Fld Num	Fld Name	Source	Category or Formula	Type
1	State	Master	State	Text
2	City	Master	City	Text
3	Amount	Master	Amount	Numeric
4	Total	Calc	@SUM(Amount)	Numeric

7. Now you will set the subtotal to zero at the end of each group so each subtotal will only contain data from that group. Proceed as follows:
- A. Once again return to the ReportWriter Editor, put the cursor on the first asterisk in the Total field and issue an Apple-N.
- B. Select choice #7, change the "Reset" to "When <field name> changes", and select "State" from the list of ReportWriter fields. That tells ReportWriter to reset the value in the Total field to zero each time it encounters a new state.
- C. Press the Escape Key to return to the Editor, enter an Apple-G, and print the report to the screen. Your report should look like this:

State	City	Amount
-----	-----	-----
Arizona	Phoenix	1000
Arizona	Flagstaff	1600
Arizona	Yuma	1200
		3800
Wyoming	Cheyenne	2100
Wyoming	Casper	1300
Wyoming	Sheridan	900
		4300

Next Month

You are now close to producing your final report. Next month you will complete this report by adding blank lines, labels, and underscores to your output. You will also learn how to compute subtotals for more than one group and how to produce a grand total.

[Dan Verkade is the author of TimeOut ReportWriter, DoubleData, SuperForms, and other popular AppleWorks enhancements.]

Late News

At press time, Zip Technology announced the release of a low-cost version of the company's ZipGSX Apple IIgs accelerator. The company also reduced prices for other models of the ZipGSX.

New prices:

7Mhz/8K cache	\$149.95
8Mhz/8K cache	\$179.95
9Mhz/8K cache	\$209.90
8K cache upgrade	\$19.95
32K cache upgrade	\$49.95

NAUG will review Apple IIgs accelerators in next month's issue of the *AppleWorks Forum*.

Get Help with AppleWorks Applications and Telecommunications

by Nanette Luoma

Each month, the *AppleWorks Forum* lists the member-volunteers who offer technical support for AppleWorks products. This month's list identifies the volunteers who can answer questions about AppleWorks applications and telecommunications.

Applications/Telecommunications

How to Use this List

Use this month's list to find help with AppleWorks applications and telecommunications. To the left of each volunteer's name are numbers indicating the enhancements that consultant supports. Volunteers are listed alphabetically by state.

- | | |
|------------------------------------|------------------------------|
| 1 = Educational Applications | 5 = Transfer Apple II to IBM |
| 2 = Business Applications | 6 = NAUG's BBS |
| 3 = Custom Printing | 7 = CompuServe |
| 4 = Transfer Apple II to Macintosh | 8 = America Online |
| | 9 = GENie |

Arizona

		City	Home	Work
2	Clay Evitts	Tucson	602-885-9789	602-296-5491
1-2	Bill Holmes	Chandler	602-899-4841	602-786-7170

California

		City	Home	Work
2	Dan Balsley	San Ramon	415-829-5085	
9	James Davis	Hayward	415-489-7024	
2,7	David Gair	Los Angeles	213-469-9916	213-469-9916
1,2	Jim Gentilucci	Los Osos	805-528-5049	
2,4,6,9	Terry Higgins	Newark	415-745-7884	415-593-2500
2	Alan E. Kahn	San Anselmo	415-457-9827	
1-3	Berenice Maltby	Corona del Mar	714-640-7369	
2,3,8,9	Will Nelken	San Rafael	415-459-0845	415-456-1795
5,6,7	Jesus Orosco	Milpitas	408-270-1011	408-945-4344

Colorado

		City	Home	Work
8	Lyle Graff	Littleton	303-794-5970	303-977-4557
1,2	Geoff Hollingsworth	Morrison	303-697-9277	
2	John Lefebvre	Thornton	303-451-5558	303-457-2852
2	John Loren	Littleton	303-978-0603	
2,4,6,7,9	Stephen Reiss	Aspen	303-923-6172	303-923-6172

Connecticut

		City	Home	Work
1,2	William Delaney	Enfield	203-745-4048	203-749-8391
8,9	Martin Knight	Middletown	203-346-9698	203-347-8594

Florida

		City	Home	Work
8,9	H. Clay Bailey III	Jacksonville	904-744-2499	904-725-3477
1-3,6,8,9	Jeff Strichard	Ft. Lauderdale	305-587-9590	
1-5,7	Mike Ungerman	Oviedo	407-366-0060	407-366-0156

Illinois

		City	Home	Work
2,3	Mark Baniak	Park Ridge	312-825-6301	312-292-4116
1-3	George Duffey	Bloomington	708-894-0849	708-451-3106

		City	Home	Work
Indiana				
1,5,8	Jack Countryman	Greensburg	812-663-4998	
3	Laura J. Kelley	Gwynneville	317-763-7290	

Iowa

		City	Home	Work
2	Stephen May	Audubon	712-563-2925	712-563-4217

Kansas

		City	Home	Work
5	Kirk Nelsen	Pittsburg	316-232-6930	316-231-8100

Kentucky

		City	Home	Work
4,5	Donald L. Corson	Louisville	812-256-3517	502-473-3083
6,9	Dan Crutcher	Louisville	502-895-1476	502-895-2720

Louisiana

		City	Home	Work
1,3,6-8	Charles Fryling, Jr	Baton Rouge	504-766-3120	504-388-1473

Maryland

		City	Home	Work
1	Anthony R. Mattern	Rising Sun	301-658-4799	301-658-5535
1,3-5,7-9	Ray L. Settle	Arnold	301-647-9192	301-887-0106
1,3	Woodrow Webster	Fallston	301-879-7034	301-887-0171

Massachusetts

		City	Home	Work
1,2	Donald McCabe	Westport	401-294-6256	508-636-2611

Michigan

		City	Home	Work
1,2,7,8	Jim Anker	Auburn Hills	313-391-0033	313-544-5344
1	Michael McMinn	Swartz Creek	313-655-4442	313-232-6541
1,3-5	James G. Reasover	Jackson	517-789-8573	517-764-1440
1,3,6	Pete Ross	Wayne	313-728-8269	
1,3,7,8	Deborah Williams	Grosse Ile	313-671-0267	313-675-1550

Minnesota

		City	Home	Work
1,2,4,5,7-9	James Hirsch	Coon Rapids	612-421-8393	612-422-5572
7	Dick Kenfield	Hopkins	612-938-4382	
1,2	Peter Zambino	St. Paul	612-690-0536	612-489-1459

Missouri

		City	Home	Work
7-9	Whit Crowley	Manchester	314-394-7955	
1,8,9	Bob Suits	Columbia	314-445-6082	

Montana

		City	Home	Work
3	Steve Bernbaum	Sheperd	406-373-6393	

Nebraska

		City	Home	Work
1,2,4,6,9	Kevin Garvin	Dixon	402-584-2271	402-584-2271
1,3,6-9	Larry B. McEwen	Hastings	402-463-2267	402-461-7550

Nevada

		City	Home	Work
4	Keith Johnson	Sparks	702-626-2543	702-784-4812

New Hampshire

		City	Home	Work
1	Phil Kirkpatrick	Keene		603-352-0640
1	Frank R. Savory	Derry		603-434-5407
1	Bob Skinner	Plymouth	603-536-3626	

Applications/Telecommunications

		City	Home	Work
New Jersey				
1,3	Mitch Bernstein	Medford	609-654-1356	
1-2,6-9	Pete Crosta	Nutley	201-667-6369	201-677-4050
1-5,6-9	Jay Hubschman	Fairfield	201-575-1968	201-624-8046
1	Link Keur	Augusta	201-875-2568	201-992-7000
3,6,7,9	David Scott	Wall	201-531-0600	201-681-0600

New Mexico				
1	Willis George, Jr.	Albuquerque	505-897-4886	505-883-9743
1,4,5	David Selwyn	Las Cruces		505-522-7622
2,4	Gary Young	Corrales	505-897-1770	505-897-1770

New York				
1-2,5	Bob Beer	Coram	516-928-6870	
1,4	Linda Doscher	West Nyack	914-358-7064	
1,2,7-9	Carlos M. Madan	Morrisville	518-562-0779	518-359-3322
9	Larry Merow	Sayville	516-567-0603	516-422-0315
1-3	James L. Nicoll	Pittsford	716-381-9480	716-546-6732
1,4,7,8	Jerry Taylor	Rochester	716-964-3319	
2,7	Terry Williamson	Orchard Park	716-662-5104	716-873-9750

North Carolina				
1,7,8	Marc Apfelstadt	Greensboro	919-282-1494	919-334-5970

Ohio				
4,7-9	Jason Chao	Cleveland Hts.	216-321-5451	216-844-3791
6,8,9	Don E. Fisher	Dayton	513-890-0428	513-461-2444
1	Jason Fogt	Lakeview	513-843-5779	
1	Carman Greco	St. Clairsville	614-695-5026	
1,2	Ltc. Robert Weis	Beavercreek	513-429-4169	513-257-6836

Oregon				
1,2,4	Jim Emig	Portland	503-771-1916	503-280-5666
1	M.W. Fox	Corvallis	503-754-7623	503-737-3628
2	Norma Gradwohl	Brownsville	503-466-5668	503-466-5668
1	Richard Millus	Medford	503-772-9787	

Pennsylvania				
1	Claude Davis, Jr.	Stewartstown	717-993-6874	717-845-3571
1-3,5,6-8	Martin Friedman	Broomall	215-353-2753	
1	Richard L. Gable	Pittsburgh	412-963-6158	412-963-1128
5	William D. Hall	Philadelphia	215-824-1160	215-441-0800
1,8	Joel Perlsh	Havertown	215-789-7673	
1	Charles R. Schultes Jr.	Lehighton	215-377-5169	215-377-6180
1,3,4,6-9	Bruce Shanker	Warminster	215-674-0118	
7	Hal Shapiro	Eagleview	215-630-8936	215-922-0500

		City	Home	Work
South Carolina				
1	Lynn DeZeeuw	Hilton Head Is	803-671-1092	
1,2,5,8	Jerry Bruce	Bristol	615-652-7473	703-676-2999
1,6,8,9	Bob Evridge	Knoxville	615-693-8817	615-693-9242
9	Joel Goldman	Nashville	615-352-3617	

Texas				
5,8,9	Joseph Kline	Lubbock	806-796-0829	
7-9	Ramon Merlin	San Antonio	512-496-5331	
1	Paul Vranish	Alvin	713-388-2911	713-331-8151

Vermont				
4	Douglas C. Corey	Middlebury	802-388-6209	802-388-4021
1	Linda Metzke	Concord	802-748-3298	802-626-9371

Virginia				
1,5	Peter Pfeiffer	Herndon	703-437-1985	703-834-3618

Wisconsin				
1,2	Debby Henning	Sharon	414-736-9229	
1	Todd Novakofski	Ladysmith	715-532-7430	715-532-6202

Australia				
1,2,5	D.E. Bruce	Caringbah	2-527-4731	2-524-3859

Canada				
1,5,7	Michael Beebe	Victoria	604-477-4630	604-721-7954
4,6,7	Brian Elston	Bowmanville	416-436-2510	416-484-2600
4,5	Jim Low	Toronto	416-690-3943	416-690-3943
5	Jean Guy Mariage	Montreal	514-844-2932	514-252-2541
1,4	Terry Price	Schomberg	416-939-8104	
4	Nick W. Van Helsdingen	Tranquillity Base	604-296-3260	

England				
5	Andrew C. Letchford	Plymouth	0752 766435	44752 766435

France				
1	Henry H. Marsh	Fontgny AuxRoses		4 3.50.27.45

Israel				
2	Bernard Katz	Ramat Aviv	03 425-011	03 752-1133

Saudi Arabia				
4,5,9	Ken Bunnell	Dhahran, 31311	3-878-9173	3-875-0051
1	James E. Hanushek	Dhahran, 31311	3-878-4075	3-877-1533

Venezuela				
2-3,5	Omar Quintero	Caracas	02-241-1366	02-291-2526

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